Apple Computer's Revolutionary Personal Computer

Macintosh

The Appliance of the Future

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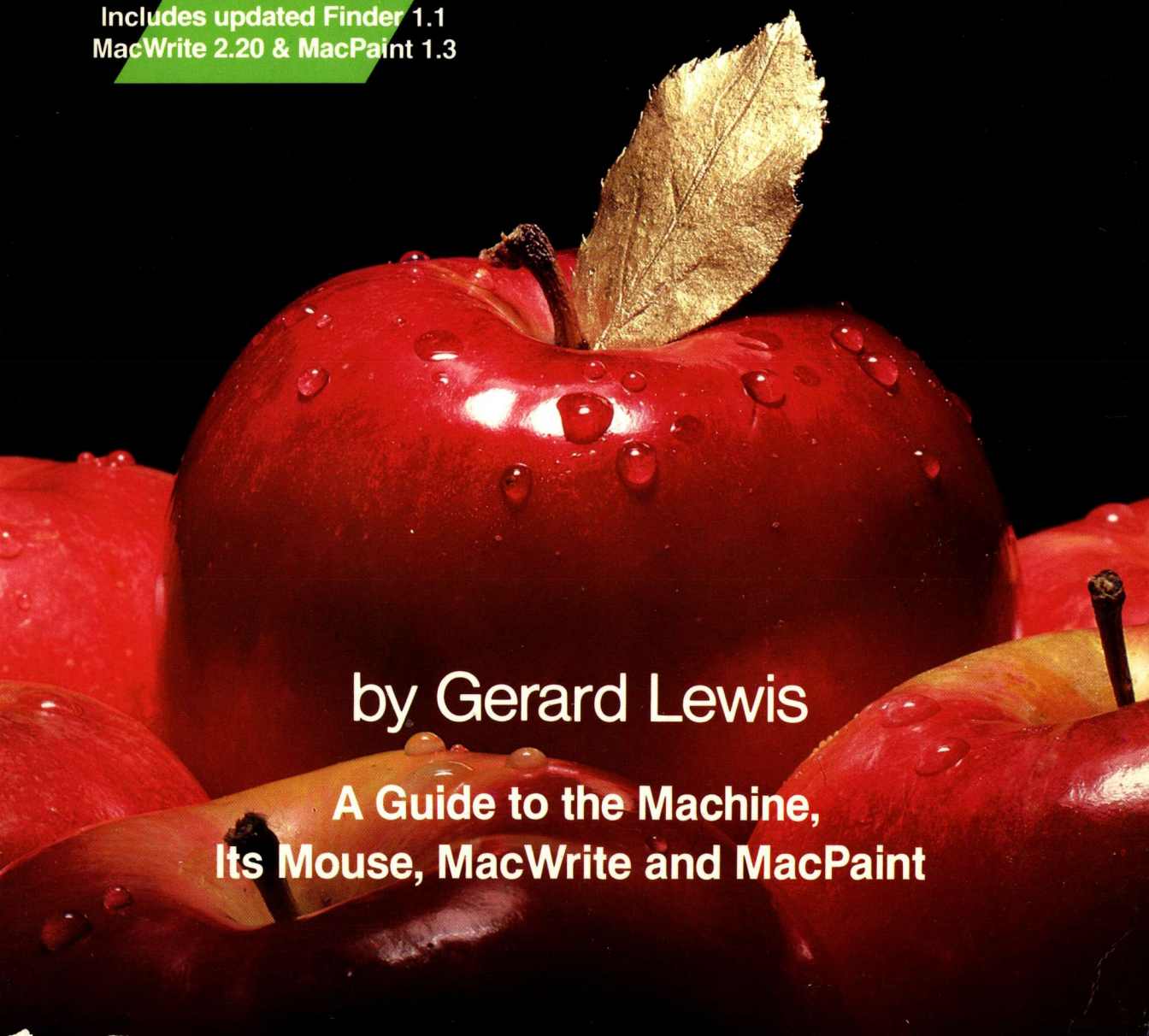

by Gerard Lewis

A Guide to the Machine, Its Mouse, MacWrite and MacPaint

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by Gerard Lewis

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To my parents

Introduction
Welcome to Macintosh!

If Macintosh is your first encounter with a computer, then you're in for a special treat. If you're already familiar with other computers, Macintosh will delight you with its ease of use. Most computers use a dizzying array of commands that must be typed in through a keyboard, but Macintosh simplifies operation by using pictures instead. Each picture represents a function that you may choose from the display screen with an electronic pointer. The pointer is controlled by the most revolutionary feature of the Macintosh: its mouse, the rolling plastic box with the button. Thus, learning to communicate with Macintosh becomes as easy as playing a video game. Even if you've never fed a single quarter into a video game and have only watched from a distance, you've probably been amazed at how much the players can do with all the controls. After all, there are no instruction books or courses for playing these games. Only experience guides you. But experience is easy to accumulate because of the way the game's designers have arranged its features. Within two or three quarters you can learn everything you will ever need to know—where the buttons are, how you get from point A to point B, etc. After that, only experience counts.

The Macintosh is similar in that after only an hour or two you will have learned enough to operate not only the software that comes with the

machine—the MacPaint graphics program and the MacWrite word processor—but virtually any software the Macintosh runs.

What makes the Macintosh even more special is the way it manipulates its format, that is, its commands, files, disks, etc. This format, also called its working environment, is similar for all applications. (Application means a program in use.) Thus, once you've mastered an application such as MacWrite, you will know your way around any other Macintosh application, be it a game, a financial spreadsheet, or a programming language. Every application has menus listing the commands available to you, as well as pictures to represent disks and documents. Every application also uses desk accessories like the Alarm Clock. This uniform working environment makes the Macintosh unique among personal computers.

The goal of this book is a modest one, especially in light of all that the Macintosh is capable of doing. By the last page, you should have a thorough working knowledge of Macintosh's two flagship programs, MacWrite and MacPaint, be familiar with the Macintosh working environment, and, going through several examples that integrate MacWrite and MacPaint, you should be able to customize your Macintosh to suit your specific needs.

Enough said. It's time to start working with the Macintosh!

Chapter 1
Getting Started

Setting Up

Setting up your new Macintosh is very easy. As you pull the components out of the box, you will notice that each item is clearly marked. The keyboard comes in the long, wide box tucked into the bottom of the Macintosh's packing. The mouse comes in the slender box packed right next to the keyboard. Your reference manual, *Macintosh*, your System Disk, the tutorial disk and cassette tape, the Macintosh's power cord, and a blank disk are all contained in the white plastic box with the Apple logo on the front. Place this box aside for the moment, but *be very careful with the contents! This package contains your only copy of the System Disk and the tutorial tape and disk.*

As the Macintosh is quite small, you can fit it easily on the corner of an average-sized desk. In fact, the main unit takes up less than one square foot of space! However, you will need room for the keyboard, the mouse, and a book or two, so allow yourself five square feet of working area (about 2′ x 2½′).

You need make only three connections to turn on the power. Plug one end of the coiled keyboard cable into the back of the keyboard, and the other into the front of the Macintosh on the lower right side. *Caution: The keyboard connector is not the same as a telephone jack. Therefore, do not attempt to connect a telephone cable between your*

keyboard and the Macintosh to get some extra length. This might permanently damage the computer and the keyboard.

Next you'll want to connect the mouse. Take the large connector on the end of the mouse cable and fasten it to the leftmost port on the back of the computer. Make sure you tighten the two thumbscrews securely on the connector to the Macintosh as this will ground the system and eliminate radio interference.

This port, like the others on the Macintosh, is a connector that allows you to add components, via cable, that will expand the capabilities of the computer. The four other ports at the back of the machine allow you to connect an external disk so that you can have two disks available at one time, a modem, which can communicate through telephone lines to other computer systems (even IBMs!), a printer to make paper copies of your work, and a polyphonic sound port that connects to an amplifier which will let your Macintosh sing. In keeping with the Macintosh's visual orientation, all ports on the machine are labeled with pictures to help you identify and make the proper connections.

The last item to attach to the Macintosh is the power cable, which you will find in the white plastic kit you put aside when you first opened the Macintosh box. Check to be sure the power switch is in the OFF position (with the "O" side of the switch depressed). Connect the power cable and plug it into a grounded wall socket (the kind with three prong holes).

Setting Up the Imagewriter Printer

If you've purchased Apple's Imagewriter printer with your Macintosh, you can make a printed copy of anything that appears on your Macintosh's screen. Connecting the printer to the computer is as easy as connecting the mouse. Open the Imagewriter Accessory Kit and take the cable out. Connect the end with the two thumbscrews to the third port from the left on the back of the Macintosh. Again, make sure the thumbscrews are tightly fastened. Take the other end of the cable and fasten it to the back of the printer, then tighten it with a small screwdriver. Now plug the power cord into a grounded outlet. That's all there is to installing the printer!

Installing the Ribbon Cartridge

If your ribbon cartridge is not in place under the front cover of the Imagewriter, remove the cover, get the cartridge, and hold it face up with the round knob on your right and the ribbon end pointing away from you. Make sure the ribbon is taut by winding the knob a few times in the direction of the arrow, then snap the entire cartridge into place behind the ribbed black printer head next to the roller. Now place the tip of the cartridge ribbon between the silver metal shield next to the roller and the black point of the printer head. To fasten the ribbon securely in place, snap it onto the holder and fasten the clips at either side. Wind the ribbon knob a few more times to ensure that the ribbon is taut.

Adding Paper

If you have paper for your printer, now is a good time to install it. If it is computer paper, also called pin-feed or fanfold paper, with round holes along the left and right edges and perforations connecting each sheet, you can load it into the Imagewriter and let it feed itself automatically until the supply runs out. Installing paper requires that you follow a few simple steps: With all power off, remove the paper cover from the front of the printer and the carrier cover from the rear. Gently lift both parts away and set them aside for a few moments. Now push back the release lever on the top left side of the Imagewriter. This is the pin-feed setting, which frees the roller in the printer so that you can adjust the paper. Look into the back of the printer to find the paper clamps, two black plastic catches mounted on a track. On each clamp is a white plastic sprocket release lever. Lift the paper clamps up, away from the track, then push the white plastic releases backward, freeing the clamps to move on the track.

Now lay your pin-feed computer paper over the back of the Imagewriter, lining the holes up with the teeth of the sprocket pins. If necessary, slide the clamps horizontally along the track to fit the paper. Once the paper is evenly seated, close the paper clamps over the pins and tuck the leading edge of the paper into the space behind the roller. Lift the metal roller shaft on the front of the roller, then turn the roller knob on the right side of the Imagewriter clockwise to feed the paper through. This is just like advancing a sheet of paper in a typewriter. Feed a good two inches through the roller.

With the white plastic releases still open, adjust the paper into position by sliding it around. Pull the two paper clamps apart so that the tension on the paper is fairly taut. Make sure the body of your paper fits evenly between the two red lines on the metal roller shaft. These lines demarcate the printing area on the paper. Now snap the roller shaft forward against the paper and the roller, and pull the two white plastic releases forward to lock the sprockets. Replace the paper cover so that it covers the sprockets and clamps. Finally, replace the carrier cover, making sure to fold the clear plastic shield down over the printer.

You're all set to print. Just press the ON/OFF button on the Imagewriter control panel when you're ready to start. If you want to see how the paper is seated in the printer, turn off the SELECT light by depressing the switch next to it once, then press LINE FEED a few times to advance the paper a line at a time. Check to make sure the paper is running smoothly through the sprockets and is not bunching up along the paper path. If you want to feed an entire sheet through the printer, press the FORM FEED button. This advances the paper one full 8" x 10" sheet at a time.

If the paper is situated correctly in the printer, use the roller knob to align the perforation at the top of a sheet with the top of the printer head. Hit SELECT again to ready the paper for printing. If you have any questions about setting up the printer, refer to the *Apple Imagewriter Printer* section in the *Macintosh* reference manual.

The Programmer's Switch

Included in the white plastic box that holds your *Macintosh* reference manual, cassette tape, Guided Tour disk, blank disk, and System Disk, is a small, brown plastic switch that has two buttons on it marked RESET and INTERRUPT. This switch, called the programmer's switch, is designed to be attached to the Macintosh along the ventilation ribs on the left side. When installed, the programmer's switch lets you stop whatever the Macintosh is doing and force it to start over. You do not need to install this switch unless you want to write your own programs, and you shouldn't install it until you work your way through at least the first chapter. If you are curious about the switch, Appendix A, at the back of this book, describes installation of the switch and what it is used for.

Turning On the Macintosh

Take a deep breath. Here's the moment you've been working toward. Flip up the power switch at the back left of the computer. If you've connected everything properly, you should hear a pleasant chime signaling that the Macintosh is on. After a few seconds, a small picture of a disk with a question mark in it will appear on the screen. The Macintosh is now ready to accept a disk. If you don't see the screen immediately, try adjusting the brightness knob located underneath the Apple logo on the front of the machine. If you still don't see anything on the screen, refer to the section *If Something Goes Wrong* in the back of the *Macintosh* manual.

A Final Installation Note

If you've purchased the external disk drive for the Macintosh, you've made your system very flexible. A second disk drive doubles the available information and storage space. You can also make backup copies of disks without having to swap disks in and out of one drive. Connecting the external disk drive requires that you follow the same steps you did when attaching the mouse and printer. Simply take the end of the disk drive cable and secure it to the second port from the left on the back of the computer. The disk drive receives its power from the computer itself, so there's no power cord.

Turning On With the System Disk

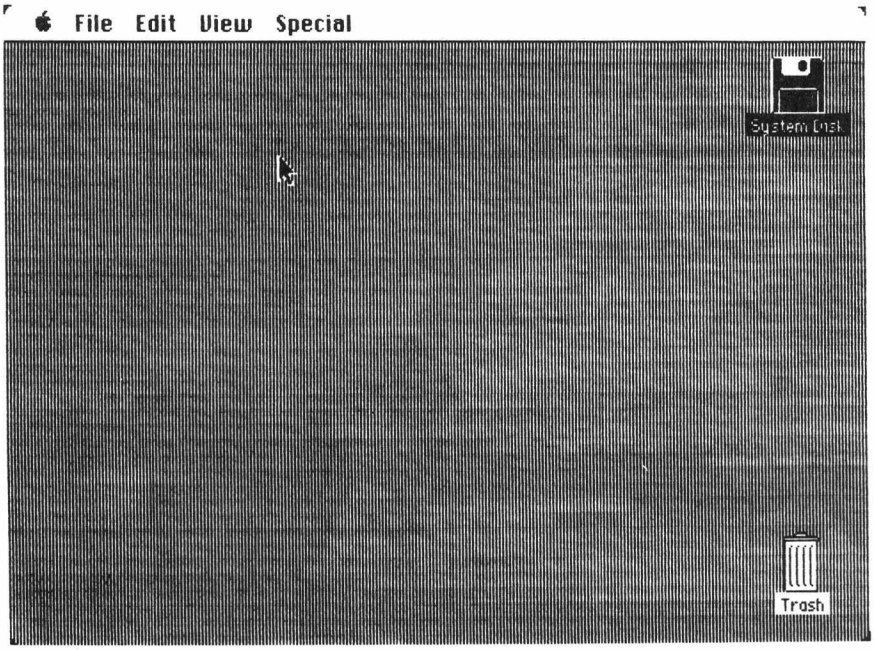
The picture of the disk with the question mark in it is called an *icon*. Dictionaries define an icon as a picture or representation of an object, frequently worthy of worship. The Macintosh's icons are to be understood in a less reverential sense. They are simply graphic representations of an object or an idea. The Macintosh is an icon-based computer. That is, it uses pictures to represent files, disks, applications, etc., whereas most other computers use names that are entered through the computer keyboard. Everything that appears on the Macintosh screen gives you a visual representation of an object.

With the disk icon showing, remove your System Disk from the white plastic box that held your manual and power cord. If you're familiar with the standard 5 1/4" floppy disks used with most personal computers,

then the hard-shell Sony disks the Macintosh uses may surprise you. They represent a major advance in software technology. They are less susceptible to damage through bending or mishandling and they resist dirt and lint because they are sealed by the metal shield at the end of the disk. They are, however, just as susceptible to magnetic fields as regular floppy disks are, so be careful not to place them near magnets, telephones, stereos, televisions, or even on top of the Macintosh itself as these, and any objects with electric or electronic interiors, generate magnetic fields. Also, store disks away from excessive heat or sunlight.

Take the System Disk, label side up, and insert it into the Macintosh disk drive, metal end first. As you push the disk completely into the drive you will feel it pull away and seat itself in the drive. Please note that *you cannot pull disks out of the Macintosh disk drive at will. You must specifically request the Macintosh to eject the disk.*

When the disk is inserted, you will hear a slight hum, which is the drive going to work. After a few seconds, a screen will welcome you to Macintosh. A few seconds later, your screen will turn light gray, with a white band at the top containing the Apple logo and the words File, Edit, View, and Special. On the right-hand side of your screen you will see two icons, one representing the disk that you just inserted and one representing a trash can. In most cases, whenever you start a disk in the Macintosh, this will be the opening screen, although the legends on the screen may be different.



The opening Macintosh desktop.

This initial screen is the Macintosh *desktop*. Its formal name is the Finder. Like your desk at home, the Macintosh desktop can be arranged in any fashion you like. In fact, the entire Macintosh operating system is built around the concept of a desktop. You will soon meet folders, documents, the Scrapbook, and the Clipboard, all of which are used to perform the routine chores of arranging files, copying and editing materials, etc.

A Note About Version 1.0 and 1.1 of the Finder and System Disk

The initial release of the Macintosh was accompanied by version 1.0 of the Finder and System Disk. Since the computer's introduction, however, a new version of the Finder and System Disk have replaced the original ones. This new version, dubbed 1.1, adds several features and small improvements over its predecessor. No matter which version of the System Disk you own, you can easily follow the discussion in this book. Most of the book's examples and pictures are tailored to the newest release of the System Disk, though wherever differences between the two versions are obvious, I mention the specific features of each, so as not to confuse readers with the earlier version.

Correction, Please

Before actually beginning work on the desktop, there is one thing you should be aware of. In the original edition of the *Macintosh* manual and on the *A Guided Tour of Macintosh* disk there appears on the opening desktop an icon for an Alternate Disk. This was part of a working version of the Macintosh operating system. However, the Alternate Disk was eliminated from the first release of the Macintosh Finder (version 1.0 [18 Jan 84]). Ignore all references to the Alternate Disk, also called the Unknown Disk, that appear in *Macintosh*. The absence of these icons makes copying and working on the desktop much easier. Updated versions of the *Macintosh* manual accompanying version 1.1 of the Finder eliminate reference to the Alternate Disk entirely.

Meet the Mouse

Also called the Stanford mouse after the university where it was developed, the mouse was designed as a pointing device that allows the user to move a pointer around a monitor or video display screen with great ease and to make command selections by pressing buttons located on the mouse's "back." If you're familiar with video arcade games, then the mouse is a near cousin to the joystick. It has the added advantage of eliminating the need for arrow or cursor keys on the Macintosh keyboard.

Start moving the arrow on the screen, also called the pointer, by sliding the mouse around on the clear table area next to your Macintosh. For the time being, don't press the button. Just roll the mouse around. The pointer will follow each and every movement you make with the mouse. Notice that the pointer changes shape if you roll across the text underneath the System Disk icon. This shape, called an *I-beam*, means that you are in a text editing mode. For now, we'll simply note this fact and come back to it later.

When you first loaded the System Disk into the Macintosh, you may have noticed that the pointer momentarily changed into a small wristwatch. This means that the computer wants you to wait while it performs some operation, usually loading or searching for something on the disk. The wristwatch can be interpreted as "Wait a second." Whenever you are using an application that requires you to wait, the wristwatch is displayed.

In the beginning, using the mouse may seem a little clumsy, but as you play with it for a while and treat yourself to some of the demonstration programs that come with the Macintosh, you'll soon become an old hand at moving the pointer around the screen. If you find yourself running out of table space for the mouse, simply pick the mouse up off the table and place it back in a free spot. You do not need to keep the mouse's rolling ball in contact with the table surface.

Macintosh Basics

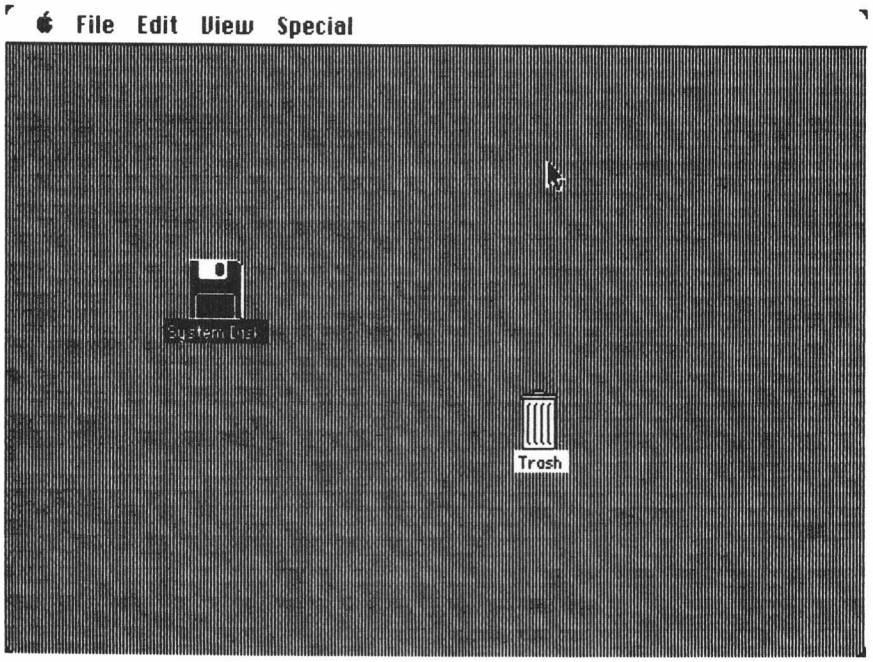
Next to switching on the Macintosh itself, the most fundamental action you will perform with your computer is called *selecting*. When an icon is selected, the application, document, or folder it represents is ready to be worked on in some form. It can be opened, renamed,

edited, duplicated, queried, or closed. Icons that are selected are highlighted in black. To select an icon you move the pointer to the object you want to select, making sure the tip of the arrow is on the picture and not on the text below it, then simply click (press and release) the mouse button with your finger. Instantly, the item you selected turns black and its name is written in white letters.

If you have changed nothing on your desktop since you first started this section, the System Disk icon is probably selected. To get a feel for selecting another icon, move the mouse pointer to the trash can and click the button.

Experiment by selecting the System Disk and the Trash a few more times. When you're finished, select the System Disk icon.

Once an icon is selected you can move the icon around the desktop using a technique called *dragging*. With the System Disk selected, position the pointer on top of the icon. Then *press and hold* the mouse button. Do not release it. To drag the icon, slide the mouse around while still holding down the mouse button. As you move the pointer, an outline of the icon moves around the screen with the arrow. When you've found a place on the desktop where you want to place the System Disk, simply release the mouse button and the complete selected icon is displayed at its new location.



Icons are moved anywhere on the desktop using the mouse.

Dragging, in addition to being one of the techniques you use on the desktop, is a recurring technique used in most Macintosh applications. Throughout this book and other Macintosh applications you may purchase, when you are asked to drag, you will already know how.

Try moving the Trash icon around the screen. Remember to select it and then hold down the mouse button. You need not select and then press again to drag. You can select and drag in one motion by moving to an unselected icon and then hold the mouse button down while you reposition the picture. Try to "jam" an icon off the edge of the screen. You'll find you can't do it. If you start to drag an icon and want to cancel the change, move the arrow to the white bar at the top of the screen and let go of the mouse button. The icon's outline will snap back to its original location.

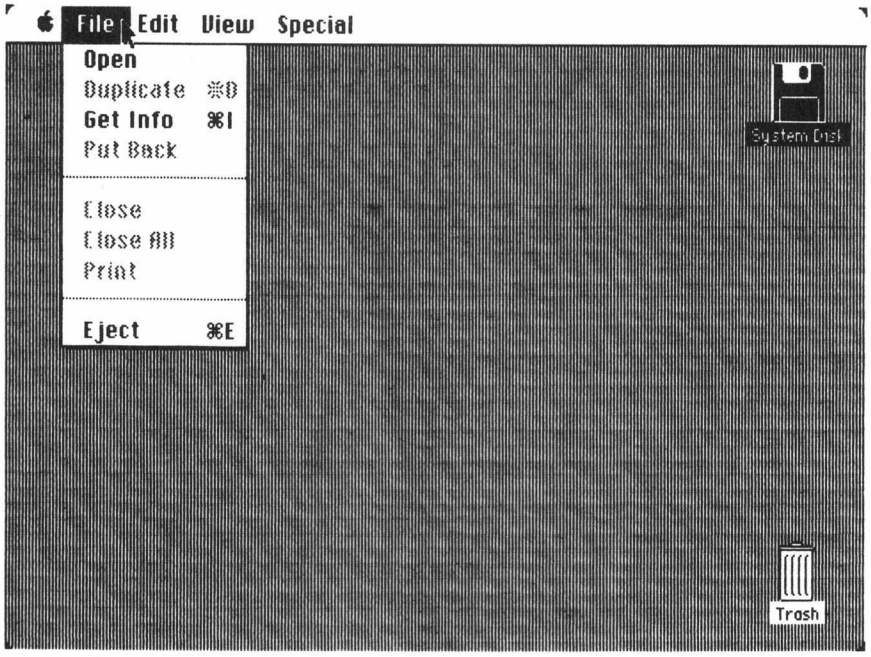
Terms of the Deal

Because the Macintosh is a revolutionary personal computer and because it is a flagship for the newest advance in computer technology, it treats conventional computer terminology in new ways. The most prominent example of this has to do with the older computer term "file." Files on conventional computers refer to anything that's stored on a disk, tape drive, or any other magnetic storage medium. On the Macintosh, the term "file" is replaced with the new term "document," allowing you to think of the contents of a disk in a new way. *Anything* you create on the Macintosh and save on a disk is a document. If you write a letter to the Chairman of the Board of Apple with MacWrite and save it on a disk, that letter is a MacWrite document. If you sketch a floor plan of your ideal office layout in MacPaint and save it, that is a MacPaint document. If you write a program in Macintosh BASIC and save it, it, too, is a document: a Macintosh BASIC document.

The Menu, Please

Now that you know your way around the desktop, you're ready to tour the information located at the very top of your screen. No doubt you've made an expedition to this line with the mouse pointer and you probably have an idea of what's behind each of these words. This line is called the *menu bar*. When you want to perform an action with the Macintosh, you choose your command from an appropriate menu. The File menu, for example, lets you work with documents. The Edit menu lets you edit text and pictures. The View menu lets you look at most window information in icon form or in more conventional alphabetic form. The Special menu performs housekeeping chores like cleaning the desktop, emptying the trash, and erasing disks.

To look at the commands within a menu, make sure the System Disk is selected and move the arrow to the menu bar. Position the arrow over the word File and press the mouse button. Continue to hold the button down. When you press the button you see a menu "drop" out of the menu bar much like a window shade being lowered.



Pull-down menus contain the commands you select with the mouse.

While depressing the mouse button, slowly slide the pointer through the menu. As you glide past some commands—Open and Get Info, for example—you see they become highlighted. Other commands, like Put Back and Print, are dimmed and nothing happens when you move past them. Commands that are currently available to you, such as Open, Get Info, and Eject, are written in bold black letters. Commands that are not available, like Duplicate and Print, are written in a dimmed, gray text. At every level of Macintosh use, the menu bars perform the same way.

Continue to slide the arrow through the menu until you are completely out of it. Release the mouse button and watch the menu vanish! Move to the menu bar again and position the arrow on Edit. Press and hold the mouse button as before, and examine the seven Edit commands.

Again, slide the arrow well away from the menu before you release the button. You don't want to initiate any action just yet. Search the View and Special menus in a similar manner. The last menu available on the screen is found under the Apple logo on the top left corner of your screen. This menu, called the Apple menu, contains several desktop accessories, such as a calculator, an alarm clock, and a note pad. Browse through this menu like you did the others, being careful not to open anything. If you inadvertently open something, don't worry. Go to the File menu and select the Close command by dragging the pointer to Close and releasing the mouse button.

When you're finished snooping through the menus, take a break from working on the Macintosh and think about everything you've learned in the last few pages. When you're ready to start again, you're going to plunge right into a full-scale tour of the Macintosh desktop, its shortcuts, and its idiosyncrasies.

Using the Guided Tours

Both the system box that comes packed with the Macintosh and the MacWrite-MacPaint box contain a disk and audio cassette tape that form a guided tour of the Macintosh and its first two programs. The

system box contains the cassette entitled *A Guided Tour of Macintosh* to be used in conjunction with the disk of the same name. Together, these two items introduce the fundamentals of working with the Finder, the mouse, and the windows and menus, and then explain the desktop concept. In addition to the tutorial, there is an excellent maze program and a piano keyboard you can play with the mouse. To take the tour, you must start the Macintosh with the tour disk, then start your cassette player at the beginning of side 1 and follow the tape's instructions.

The MacWrite-MacPaint tour disk and cassette give you a visual introduction to each program, but are by no means intended to be exhaustive. In order to learn the ins and outs of both programs, you will need to use this book along with the appropriate reference manuals provided with the Macintosh.

In general, the tour disks and cassettes are an excellent way to come up to speed on the Macintosh's basic functions and abilities. They are also useful for a quick review when you finish this book or have been away from your Macintosh for a couple of days.

Going Ahead

By this point you've taken in quite a bit of information about the Macintosh. You're familiar with the desktop, the menus, and using the mouse as a pointer. So what are we going to do next? Start over. But not completely from the beginning.

If you haven't been able to resist the temptation to play with your Macintosh's fancy screen and various commands, you can clean up your desktop by selecting Close All from the File menu. You're now back at the beginning, ready to start touring the menus again, this time in more detail, and to start learning the Macintosh vocabulary. Words like windows, Finder, and boxes creep into nearly every application on the Macintosh.

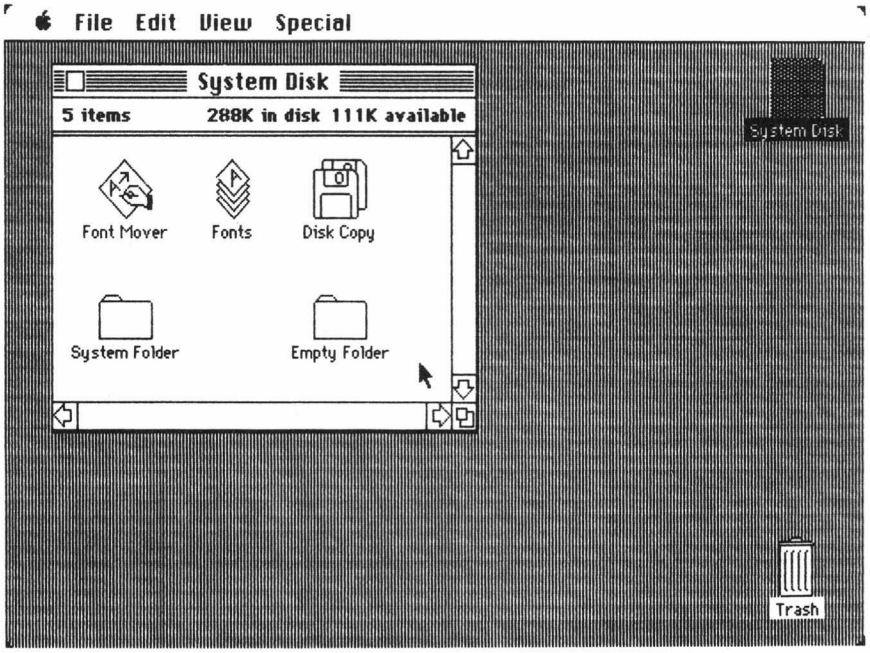
The Desktop Metaphor—Finding Your Way Through the Finder

When you first began this chapter, you briefly explored the Macintosh desktop. Apple designed the desktop to be an easy, familiar surface on which to work with the Macintosh's documents and applications. It contains some very useful accessories and permits some very sophisticated manipulations with the objects on it.

As you read through this book and the *Macintosh* reference manual that comes with your computer, you will run across references to the Finder. Essentially, the Finder is an application (set of instructions) that is built into the Macintosh operating system. It controls all the basic housekeeping duties of the Macintosh, such as opening, closing, rearranging, renaming, copying, and deleting documents and disks.

Opening Up

In order to examine the contents of folders, to run applications programs such as MacPaint and MacWrite, or to open documents, you must open them through the File menu. Make sure your System Disk icon is selected. Slide the arrow to the File menu and hold down the mouse button. The very first command in the menu is Open. Move the arrow down so that Open is selected and release the mouse button. A *window* quickly jumps into place on the screen listing the contents of the opened icon, in this case, the System Disk.



Windows are the most basic means of presenting information on the Macintosh.

Walking Through Windows

You can open windows for any disk or folder. Windows contain several important pieces of information and allow you to move documents around and arrange them to your convenience. Most windows, whether they come from disks like the System Disk or folders like the System Folder, let you inspect the contents of the object they were opened from. Except for the information contained within them, nearly all windows look alike. (There are a few exceptions to this rule, but what fun would life be without exceptions?)

Across the top of the window is the title bar, in the middle of which is the name of the document or disk that is currently open. The small box at the upper left corner of the window is the close box. A click in this space closes the window. The second line of the window gives you information about the number of items in the window, the amount of disk space all the documents occupy, and the amount of free disk

space that's left. The System Disk window for version 1.1 of the Finder should tell you that there are 5 items, 288K in the disk, and 111K available. If your information doesn't exactly match this, it's possible that you or someone else has rearranged your disk's contents or you might own a different version of the System Disk. For example, if you are using version 1.0 of the Finder, then the System Disk window will tell you there are 3 items, 234K in the disk, and 165K available.

Bytes, RAM, ROM, and Ks

When you use personal computers with disk storage systems, it's inevitable you'll be inundated with terms like byte, RAM, and ROM. The computer world is full of odd-looking and odd-sounding words. It is also replete with acronyms. The popular BASIC computer language used by most personal computers is not named as such because it's an elementary language, but because it's really called Beginner's All-purpose Symbolic Instruction Code. It's no wonder this language is exclusively referred to as BASIC.

Computer literature, when talking about machines such as the Macintosh, frequently refers to RAM and ROM. RAM is an acronym for random access memory, which is simply free space within the computer that holds applications like MacPaint and MacWrite, and any information you are creating with the applications, like a letter in MacWrite or a diagram in MacPaint. ROM, on the other hand, stands for read only memory, which is memory that permanently contains inalterable applications. An example of something contained in ROM is the disk and question mark icon that appears when you first turn on your Macintosh. Even without having inserted a disk, the screen displays a picture. This picture is located in the Macintosh's ROM.

Disk Storage

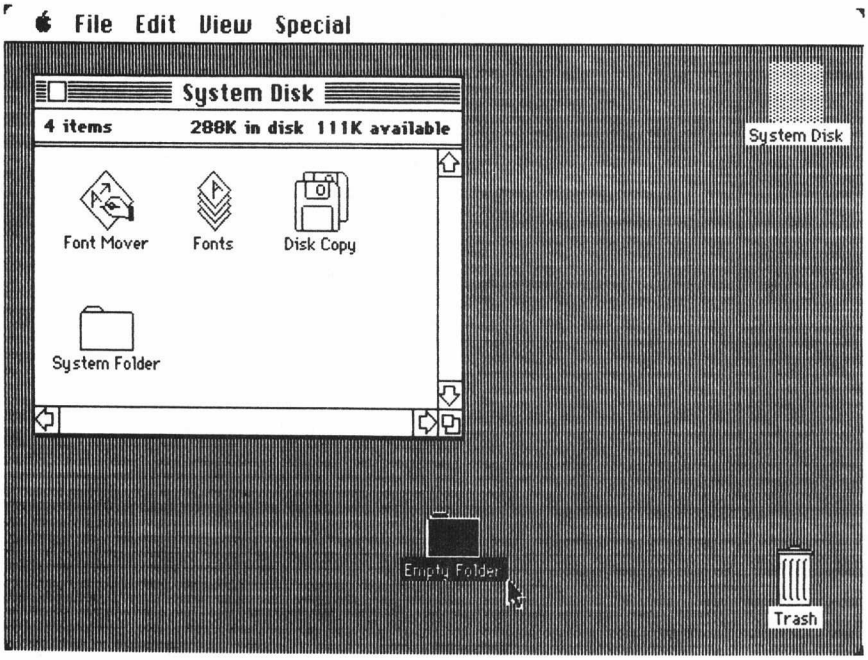
While you're working with the System Disk, it's important to know just how much information a disk stores. Depending on the computer and the storage format, standard 5 1/4" floppy disks usually hold anywhere from 150,000 to nearly 800,000 bytes or characters. One byte represents a single letter, digit, or special symbol. Since disks store so much information, storage is usually written in terms of 1,024 bytes, called one K (which stands for the prefix kilo, meaning one thousand). Each Macintosh disk holds 400K or about 400,000 bytes of information. That's enough room for a 200 to 250-page book. Of course, you never

want to fill a disk completely (the Macintosh warns you if this is happening). You should always leave some free space on a disk in case of an emergency.

Back to the Windows

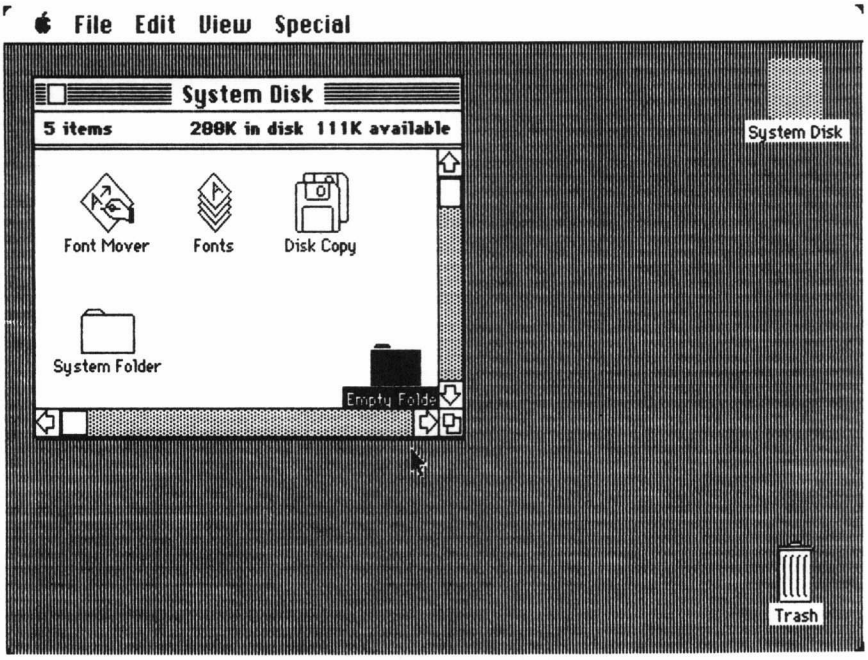
Within the viewing area of the System Disk window you see five icons. (Three if you're using version 1.0 of the System Disk and Finder.) One represents an application called Font Mover and another is an accompanying file named Fonts. The third icon, Disk Copy, is a utility program that lets owners of single disk drive Macintoshes make copies of disks with a minimum number of disk swaps. The remaining two icons are the System Folder and the Empty Folder. Appropriately enough, the two folder icons resemble Manila folders. The application, Font Mover, which is a program to manipulate the different typefaces of the Macintosh, is represented with an icon showing a hand performing some action. Nearly all Macintosh application icons show a hand performing some action appropriate to the program. For example, the MacPaint icon shows a hand with a paintbrush.

Within a window you can manipulate icons much like you can on the desktop. Use the mouse to select the icon marked Empty Folder. Select it by clicking on it. Then drag it around the window and place it in a new position. Be careful not to place it on the System Folder. Once you've moved it, drag it again and this time move right out of the window and place it on the desktop.



Icons may be moved from a window onto the desktop as well as between other windows.

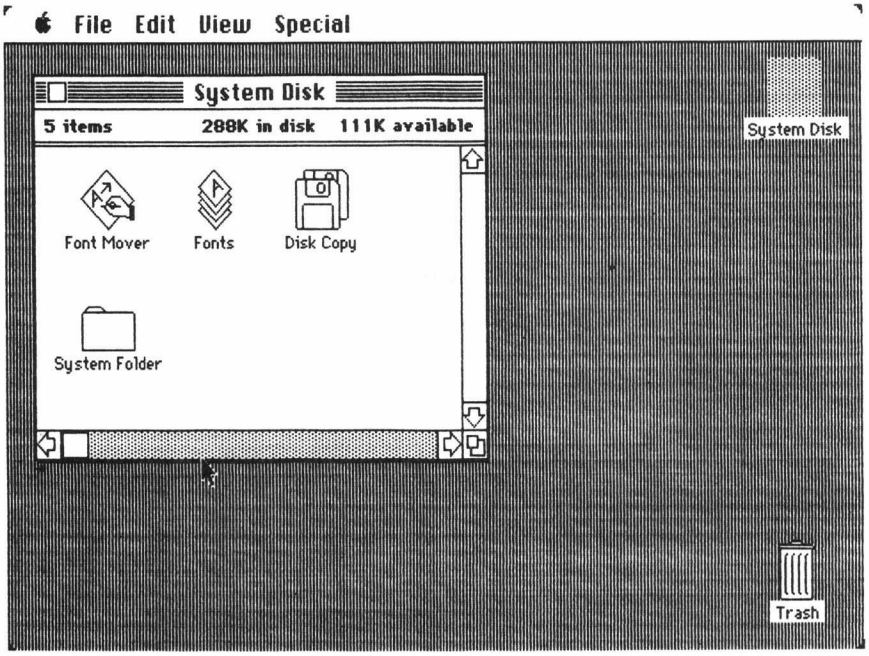
Drag it back to the window and place it in the bottom right-hand corner of the window so that at least half of the icon is outside the border of the window. You should only see the top corner of the Empty Folder icon.



Icons may be placed anywhere within windows.

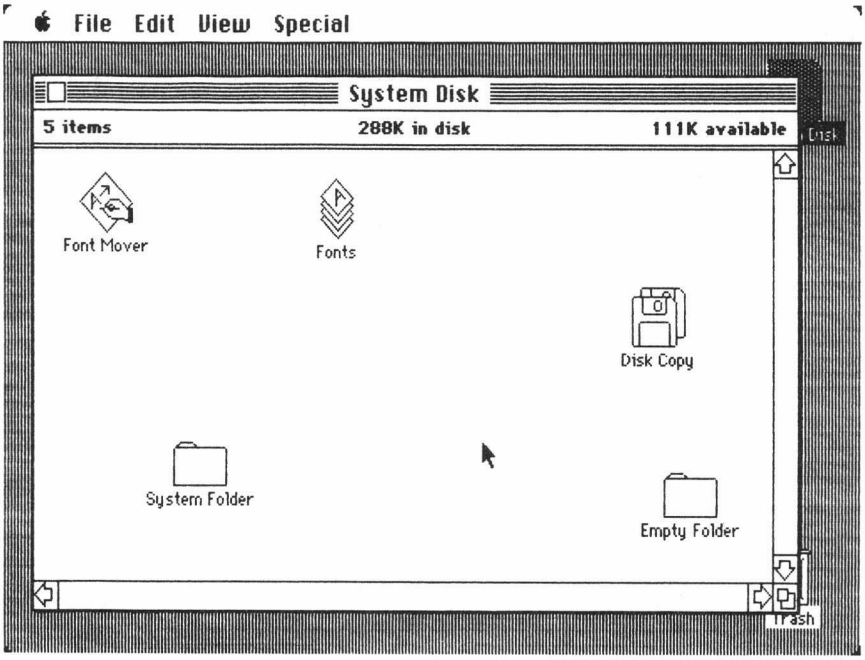
Scrolling is another important Macintosh technique you use in virtually every application. The term comes from the spiral parchment scrolls that were wound onto posts and were the primary means of storing written information for several hundred years. In order to read these scrolls, they had to be wound around their posts, bringing new text into view while wrapping old text onto the post. Macintosh scrolling requires that you wind the information in a window or document around imaginary posts to view it completely. Like selecting and dragging, the techniques for scrolling remain the same between applications; only the objects you scroll change.

You can *scroll* through the window to get a complete view of the icon by clicking the pointer over the arrows that line the right edge and bottom of the window. These are called the scroll bars, and the white box that sits in any scroll bar is called a scroll box. You can click over the arrows of the scroll bar to look around the entire window or you can drag the scroll boxes. Try manipulating these features for a few minutes. Scroll as far as you can in any direction and place the Empty Folder icon at the far edge of the window. Then scroll back to the other side. You should, depending on how far you moved the window, see the Empty Folder icon disappear.



Windows with icons out of view let you scroll them into view using the scroll bars at the bottom and left side of the window.

Make the Empty Folder disappear off the edge of the System Disk window by scrolling it out of view. There is one last feature that lets you look around when there are many documents and applications within one window. The two small squares, one on top of the other, that you see at the bottom right corner of the window are called the size box. Not surprisingly, the size box allows you to vary the size of the window. Move the pointer to the size box and hold the mouse button down. Slowly drag the frame of the window around the screen. As you drag, you see an outline of the window moving with the arrow. Stretch the window until you can see all three items easily in the System Disk. Don't worry about covering other icons on the desktop with the window. They are only covered until you resize the window or close it.



Windows with size boxes at the lower right-hand corner may be resized to any dimension.

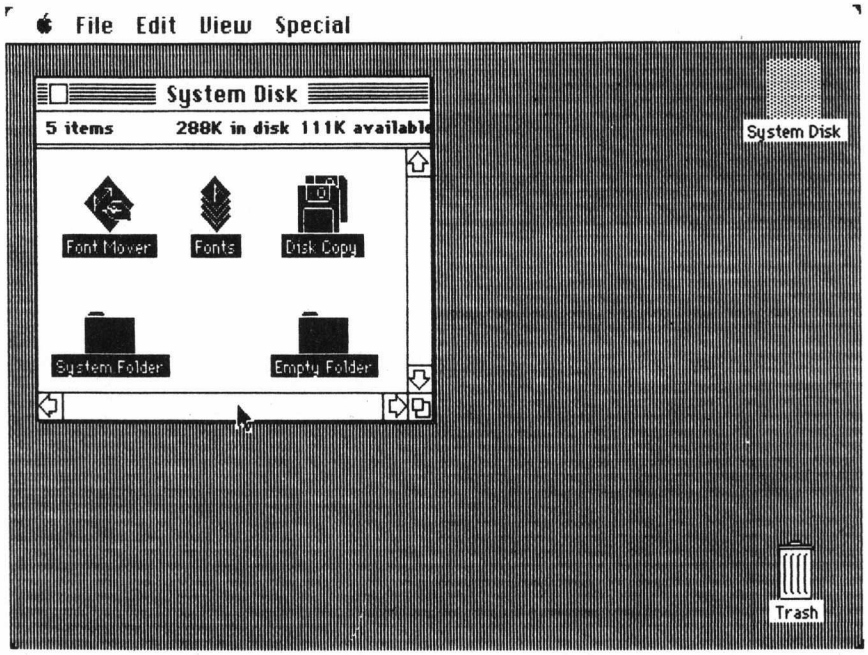
Shrink the window down to its original size by using the size box again. If you can't see all three icons in the window, move the pointer to the Special menu on the menu bar. Hold the mouse button down and slide the pointer to the first command—Clean Up—then release the button. The icons in your window will automatically jump into a more orderly arrangement, and any icons that are out of sight will snap into view inside the window. In general, Clean Up straightens up the icons in a window or on the desktop. However, windows that are packed with icons may not be large enough to display all of them at once. In this case, Clean Up will tidy up even those you can't see.

Multiple Selecting

In addition to letting you select individual icons at will, the Macintosh desktop allows you to select more than one icon at a time so that you can drag groups of documents around the desktop. Multiple selecting is very useful when you want to place several items in a folder or move them to another disk, both of which you will do later in this chapter.

There are two ways to make a multiple selection. If the icons you choose are grouped together, place the tip of the pointer just beyond the group of icons and drag over the icons to be selected. When all the icons are within the borders of the dotted rectangle that appears behind the pointer, releasing the mouse button selects them all.

Open your System Disk window and resize it to view all of its icons. Place the pointer near the upper left corner of the icon viewing area and drag the rectangle over all the icons. Release the mouse button to select the icons. These icons may then be handled as would any single icon. Place the arrow pointer on any one of the selected icons and drag it out of the window to the gray desktop area. Because all these icons are selected, the others follow. After you've placed the icons on the desktop, click anywhere away from the icons to unselect them. Now reselect them by dragging the rectangle over them and releasing the mouse button. Multiple selections work equally well in windows and on the desktop. Drag the selected icons back to the System Disk window.



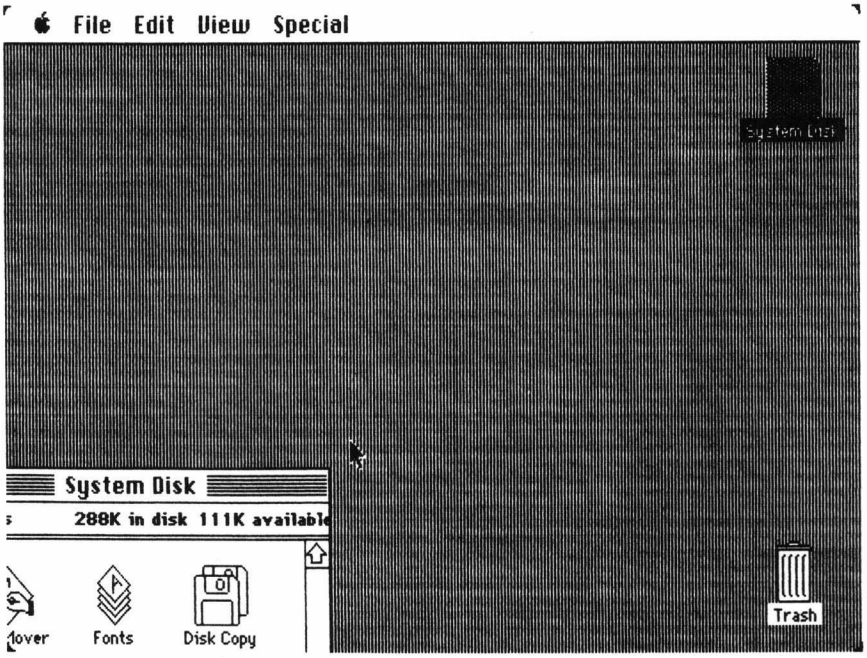
Multiple selection lets you move a group of icons together.

The second way to select more than one icon lets you choose icons that are not grouped together neatly. This technique consists of holding down the Shift key on the Macintosh keyboard while you select each icon you want individually. Suppose the five System Disk icons are lined up, left to right, in the order System Folder, Disk Copy, Empty Folder, Font Mover, and Fonts. If you want to select both the System Folder and Font Mover, you can't use the selection rectangle. Instead, press and hold the Shift key while you click once on the System Folder and Font Mover to select them. Then place the pointer on either selected icon and drag both of them out of the disk window onto the desktop. As is the case with all multiple selections, you move them together by dragging any one of the selected icons. Return them to the disk window in the same fashion.

You may mix the two multiple selection techniques by selecting grouped icons with the rectangle and any stray icons with the Shift key feature.

Moving Windows

The last, and one of the most useful, manipulations you can perform is moving an entire window to another place on the screen. Windows move just like icons. Bring the pointer to the title bar of the window and drag the entire window around the screen, but be careful not to drag by the small box on the left of the title bar. That box is for closing the window. If you accidentally close the window before you move it, open it again from the File menu. Cover other icons on the desktop with the window and then move it off of them. Unlike disk or document icons, you can "shove" an entire window almost completely off the screen. Try dragging a window by the very edge of its title bar and then push it off the screen. Except for a small edge that lets you grab the window again, it's almost gone.



Windows may be moved almost completely off the Macintosh desktop.

If you wish to cancel a window move, move the pointer to the menu bar and release the mouse button.

You may arrange windows in any fashion you like on your desktop. To this end, the Macintosh even remembers where your windows were when you closed them and automatically places them in their old spots when you reopen them. Try moving the System Disk window halfway off the bottom of the screen. Now go to the File menu and select Close with the pointer by dragging through the commands and releasing the mouse button when Close is selected. This is one way to close any window, regardless of application. You will be introduced to a shortcut in a moment. You should see the System Disk window zoom back into the System Disk icon. Now open the window again. It jumps right back to the spot you closed it from.

Open All the Windows, Please

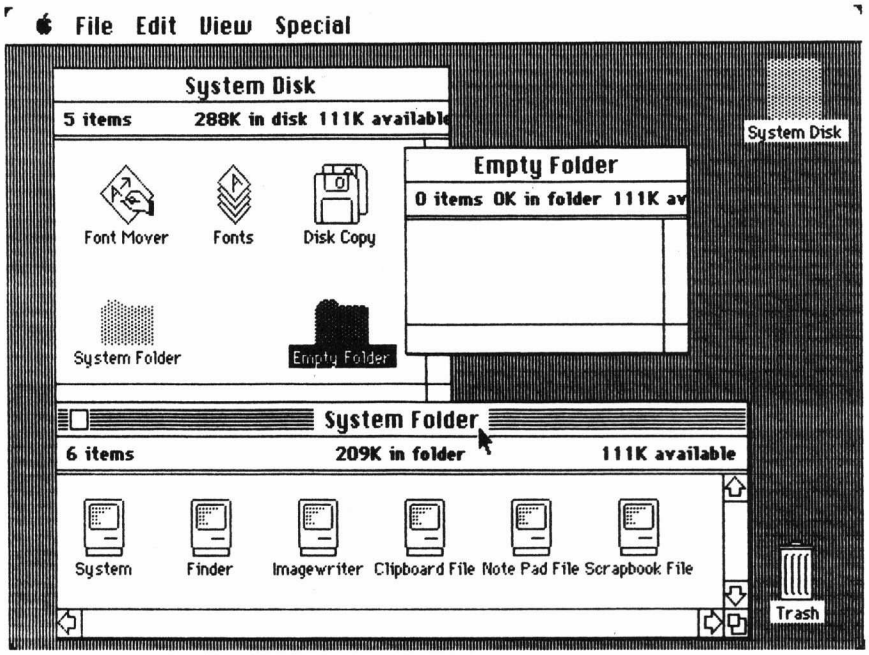
Windows are the Macintosh's most basic means of presenting information. Since you can cover your desktop with documents and the like, you can also open more than one window at a time. In this fashion, you

can simultaneously examine the contents of several different folders, disks, and documents. Having more than one window open also facilitates copying and moving items between folders and disks. This is especially important when you want to organize the various documents you will create using applications like MacPaint and MacWrite.

Open the System Disk window by selecting the disk icon and choosing Open from the File menu, then slide the pointer to the Empty Folder icon in the window and select it. Open this folder from the File menu. Notice the System Disk icon is no longer selected but the Empty Folder icon is. A window should be somewhere on your screen for the Empty Folder. Chances are that it overlaps the System Disk window at some point. Of course, the Empty Folder is empty, so the line below its title bar should read something like "0 items 0K in folder 111K available." Your number for free space might be slightly different depending on the version of the System Disk you are using and any modifications you may have made to the disk. Move the Empty Folder window around the screen by dragging its title bar.

Though the Macintosh can have many windows on its desktop at once, it can only work in one of these windows at a time. The window you're working in is the one that's in front of all the other windows. It's distinguished from the rest by having a highlighted title bar, scroll bars with arrows and, perhaps, scroll boxes. When a window is being worked on, it's said to be the *active window*. The last icon window you open automatically becomes the active window. To work in another window, you must activate it by clicking anywhere inside of it. Should you want to move a window without activating it, hold down the Command key (the one to the left of the spacebar with the cloverleaf pattern) while you drag the window by its title bar.

If the Empty Folder window is open, move the pointer to the System Disk window and click the mouse button. You will see the window spring to life with a highlighted title bar.



Any number of windows may be open at one time on the desktop.

That's all there is to activating windows, whether you have two windows or twenty windows open on the desktop. To look at any one, just click within it and you're on your way.

Cleaning Off the Desktop

Like the table you might be working on right now, your Macintosh desktop can become very cluttered. Two or three disk icons, the trash, and several open windows can easily make the Macintosh screen an unruly mess to look at. Opening too many items at once also increases the chances of accidents like placing a MacPaint document into a MacWrite folder. Fortunately, accidents like this are reversible. You don't have to worry about accidentally losing something important. The Finder prevents disaster by asking you to confirm or cancel major actions, such as erasing a disk. Since the Macintosh screen is small,

and space is at a premium, it's best to open no more than three or four windows at once. Of course, you can resize windows to make them smaller, but if you copy more than a few documents into one of these windows, you'll have to resize it again to view its contents. Keeping open windows to a minimum reduces the clutter and lessens confusion.

Shut the Window

Closing windows can be done in a variety of ways. The one we've examined briefly, the Close command in the File menu, is the most obvious. Close shuts the active window only. Once this window vanishes, any window on the screen containing a selected icon becomes active. If no other window contains a selected icon, the window immediately underneath the one you have just closed becomes active.

Immediately below Close in the File menu is Close All. Close All shuts *all* open windows, desk accessories, etc. After you execute Close All, you find yourself with a very tidy desktop.

A shortcut for closing windows uses the small box on the left-hand side of the title bar, called the close box. You can simply position the arrow over the box and click the mouse button. Clicking this box has *exactly* the same effect as using the Close command from the File menu. As you become more familiar with the Macintosh, you will find yourself using these and other shortcuts almost to the exclusion of the "regular" command methods.

Organization on the Desktop

By now you should have a fairly complete understanding of the fundamentals of working with the desktop. Like a real desk, the Macintosh's electronic desktop lets you arrange your work in a manner that suits you, not the computer. Of course, it's nice to have the option of looking at your desktop in the format of more conventional computers. The Macintosh lets you view the contents of a window in the more standard alphabetic form, as opposed to the Macintosh's usual icons.

This time, instead of opening the System Disk from the File menu, position the pointer on top of the System Disk icon and click the mouse button twice in rapid succession. This is a technique known as *double-clicking*. If your first attempt at double-clicking didn't open the System

Disk, try again, making sure you execute two complete rapid clicks. Double-clicking is a common shortcut that may be used in every Macintosh application. It is available to you, whenever it is necessary or appropriate.

Once you've opened the System Disk, you see the familiar icons displayed in the window. Move the pointer to the View menu at the top of the screen and hold down the mouse button. Within the View menu are five different ways you can choose to look at window information. If you see icons within your open window, then *by Icon* is checked in the View menu. The other four options, *by Name*, *by Date*, *by Size*, and *by Kind* are alphabetic means of arranging your window's information (sometimes called a directory). Slide the pointer to *by Name* and release the mouse button. The icons in the window vanish and are replaced by a more conventional directory format, like that of other computers, which looks like this:

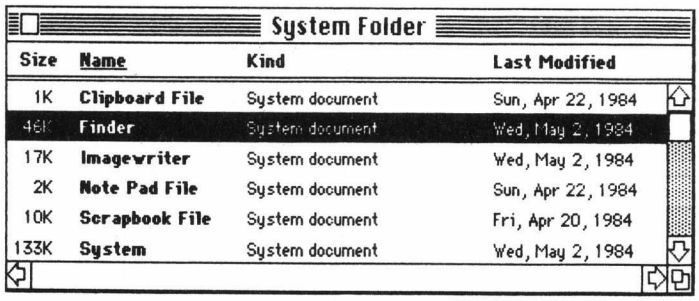
6K	Disk Copy	application	Wed, May 2, 1984
0K	Empty Folder	folder	Wed, May 2, 1984
13K	Font Mover	application	Wed, May 2, 1984
56K	Fonts	Font Mover document	Wed, May 2, 1984
209K	System Folder	folder	Wed, May 2, 1984

Your dates will be different from these. Remember, also, if you are using the initial release of the Macintosh System Disk, you will only see a directory listing for Font Mover, Empty Folder, and System Folder.

The first column lists the size of the document, in thousands of bytes. The second column lists the document name. The third column lists the type of document, and the final column lists the last date on which changes are recorded for the document. Choosing *by Name* from the View menu arranges the documents alphabetically by name. Picking *by Date* from the View menu lists them in chronological order. Listing *by Size* places the largest document first, while the last viewing option, *by Kind*, groups the applications, System documents, folders, etc., together for easy reading.

If this alphabetic format seems easier for you to read, then by all means use it. Icons are Macintosh's "native" language, but you can, with a quick trip to the View menu, make the Macintosh talk like most computers.

Should you decide to use any View menu option other than *by Icon*, you can still select a document by clicking anywhere on its line in the display.

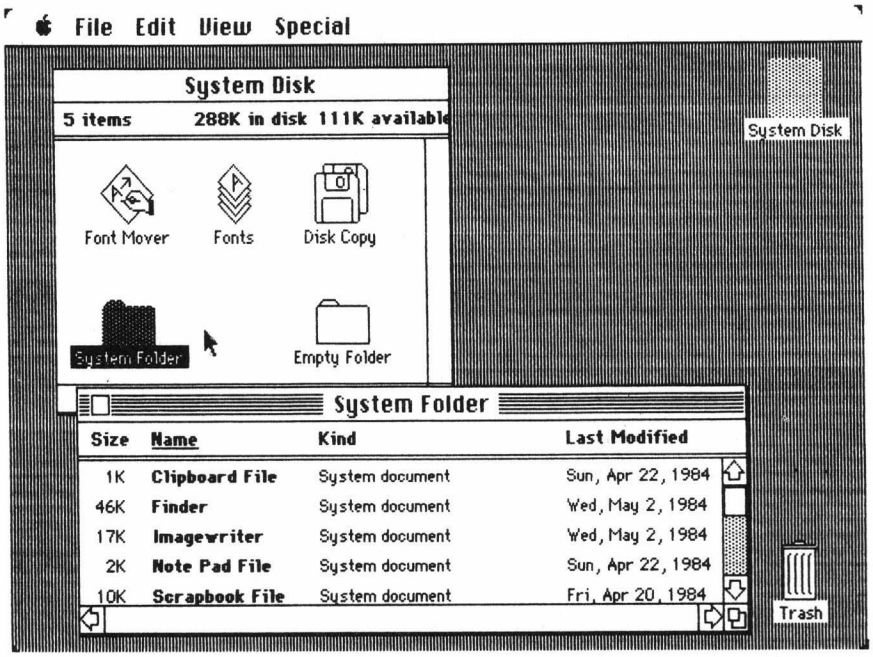


The View menu options let you view window information in conventional alphabetic form, as well as in icon form.

You can then open the document from the File menu. You cannot, however, move selected bars of text around. If you wish to look at more of the window, you must either resize the window or scroll through the document list with the scroll box and arrows.

If you find yourself using the alphabetic form for your window directories, you'll be pleased to know that the Macintosh remembers the way you want to view your documents. Thus, if you close a window where you were viewing its contents listed *by Name*, when you reopen that window, the contents are again listed *by Name*. Even if you eject your disk, turn off the machine, and come back to it a day later, your viewing options are preserved.

If you have more than one window open on the desktop, only the active window can be changed using the View menu. You can, however, view several windows differently at the same time. Some can be viewed *by Icon*, some *by Date*, and some *by Name*. If you select Close All from the File menu and then reopen all your windows, you see that the Macintosh does indeed remember your viewing habits.

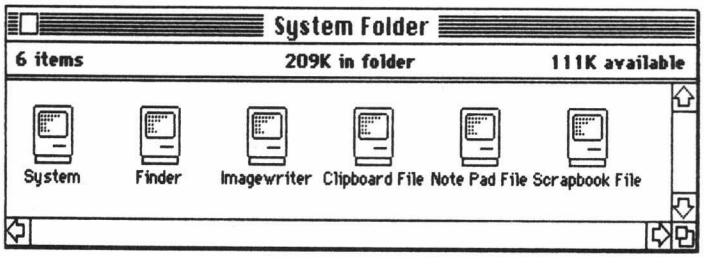

File Edit View Special
System Disk
5 items
288K in disk 111K available
Font Mover
Fonts
Disk Copy
System Folder
Empty Folder
System Folder
Size Name Kind Last Modified
1K Clipboard File System document Sun, Apr 22, 1984
46K Finder System document Wed, May 2, 1984
17K Imagewriter System document Wed, May 2, 1984
2K Note Pad File System document Sun, Apr 22, 1984
10K Scrapbook File System document Fri, Apr 20, 1984
System Disk
Trash

Different View menu options may be used at the same time on the desktop.

Filling Folders

Since the Macintosh desktop is small, organization is crucial. Too many documents strewn about the desktop make reading and finding information difficult. To make organizing your desktop easier, the Macintosh allows you to use folders. Like ordinary paper folders in which you place documents, the Macintosh folders may be filled with any number of documents or even other folders.

An example of a folder is available on your System Disk. It's called the System Folder. Move the pointer to the System Folder and open it by double-clicking on the folder icon. Inside you will see six icons representing various system functions. The System icon contains the information that runs the Macintosh. The Finder icon holds the program that manages your desktop's operations. The Imagewriter drives the printer.



The System Folder contains the files that run the Macintosh, drive the Imagewriter printer, and house the various typefaces.

The three file icons—the Scrapbook File, Note Pad File and Clipboard File—are system functions that you use to store and retrieve information either from the desktop or from within an application. You needn't worry about the exact location of these three files in the System Folder because you normally use them directly from the desktop or from an application. They are located within the System Folder merely for organizational purposes.

Close the System Folder using the close box at the window's top left corner. The System Folder is a perfect illustration of the use of folders for organizing the Macintosh desktop. If you had the six system files at the first or main level of the System Disk window and then added several files of your own, you might start to have trouble keeping track of everything that's in your Macintosh System Disk. Using a folder solves this problem. No matter where the files for the system or an application are stored, the Macintosh will find them. You need never pull things out of folders and place them at the main level of the window in order to use them. Simply open whatever you need and the Macintosh does the rest.

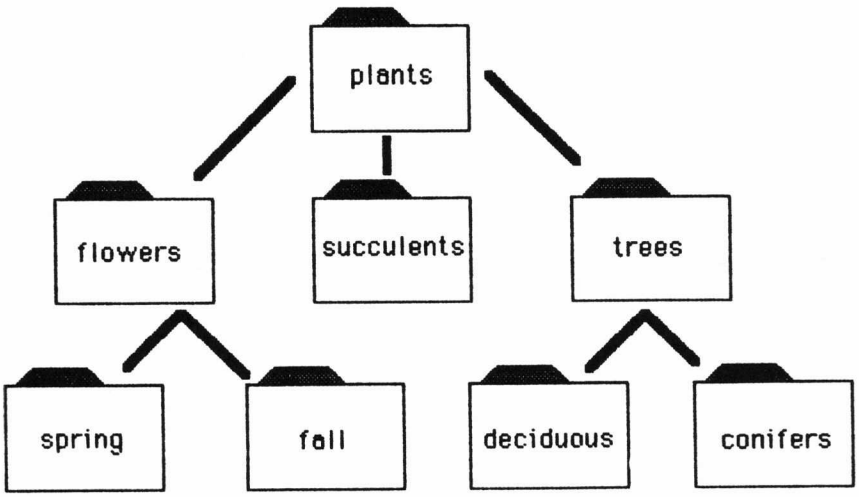
Planting a Folder Tree

One of the special properties of Macintosh folders is their ability to be nested within one another. You can put folders within folders within folders to no end. Of course, to get at something lodged deeply within several folders, you must open all the preceding folders first. This arrangement, though perhaps confusing initially, turns out to be very useful. It's called *hierarchical organization,* and to understand it better, it might be useful to think of this system as if it were a tree. The top of the tree is the "root" folder (for some reason, computer trees have their roots at the top) and the folders underneath the root are branches. It's

very simple to store related documents in one place with different categories of the same topic grouped in folders of their own. As an example of a tree using folders, look at the accompanying diagram that's a representation of a folder tree.

Suppose your topic is plants. You could keep all your documents in one folder marked plants to separate them from other topics and to make finding any particular plant document an easy task. Suppose, however, you write a great deal about plants. You could fill the screen quickly with related documents and have a hard time finding a specific one. If you employ a folder tree, you can improve organization and lessen confusion.

Following the diagram, you write about plants, so that's a perfectly reasonable place to start your folder tree. *All* of your plant writings will go into this folder. If you open the plants folder, you will probably find some documents you are currently working on along with three folders marked flowers, succulents, and trees.



Folder Trees are a convenient and useful way to store documents in folders on disks.

These three folders are the first division in the organization of your work. Since trees, flowers, and succulents (cacti for the nonbotanical) are three distinct types of plants, you can organize your writing folders around these natural divisions. Within the flowers folder, you might have a few fragments of old pieces and some "works in progress," while you might have only a single document in the succulents folder, as cacti are not your specialty. Inside the tree folder, however, you might find two more folders: deciduous (trees that lose their leaves) and conifers (evergreens). Within these folders might be several pieces you plan to publish at a later date about pine trees and leafy trees. Within your flowers folder, you have two more folders, one for spring flowers and one for fall flowers.

This example illustrates the potential organizational power of folder trees. You can easily create them, no matter what application you're running on your Macintosh. In fact, if you regularly use the same disk for storing your work from two applications (e.g., programming in Macintosh BASIC and writing reports with MacWrite), then folder trees are indispensable tools, letting you store each kind of document in a separate folder.

Transparent Folders

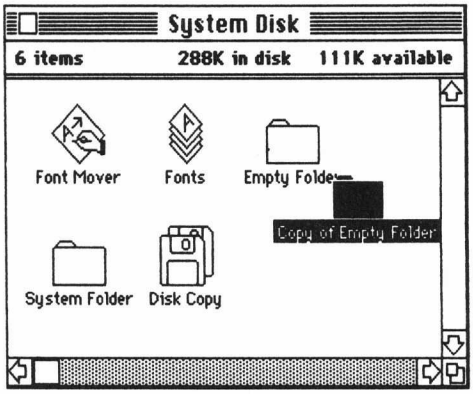
Whether you use single folders or create folder trees, it's important to know how Macintosh applications like MacPaint and MacWrite handle folders and the documents you place in them. Documents created by an application are unique to that application, and cannot be used by other applications. If you create a party invitation with MacPaint and save it on a disk, this MacPaint document can only be opened and changed by MacPaint. You cannot use MacWrite, Macintosh Pascal, or any other application to alter this document.

Because documents are available only to the applications that created them, no matter where you store your documents on a disk—whether in one folder, or within a network of twenty nested folders—each application knows exactly where all the documents it can use are located. For example, if you have several MacPaint and MacWrite documents mixed together in several different folders, when you want to open a document from inside the MacPaint or MacWrite application, all documents available to that particular application are listed.

When you save documents from within an application and then return to the desktop, the documents appear in the disk window and do not appear in any folder. You must drag these documents to the appropriate folders to place them there. The single exception to this is when you open a document from an application, update or edit it, and then save it with the same name. The document icon stays in the folder or folders it was originally located in, and does not move back to the disk window.

Using Folders

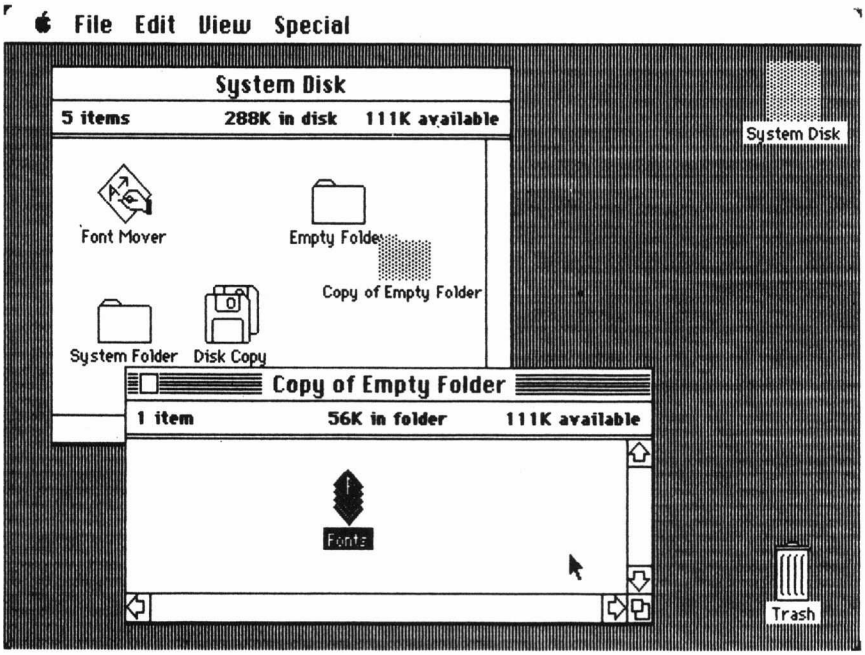
Making copies of folders is quite simple. On every disk you format or purchase, there is a folder icon called the Empty Folder. This is automatically placed on the disk by the Macintosh. This folder provides you with an unending supply of other folders for your work. To make a copy of Empty Folder, select it and move the pointer to the File menu and choose the Duplicate command.



Using the Duplicate command from the File menu, you may duplicate any selected document, application, or folder, provided there is sufficient space on the disk.

If Duplicate is dimmed in the File menu, then you haven't selected the Empty Folder. Select it, and choose Duplicate by sliding to the command in the File menu and releasing the mouse button. As soon as you release the mouse button, a new folder icon called Copy of Empty Folder appears to the lower right of Empty Folder. Drag the new copy to a clean space on the desktop or window. You can now fill this folder with other documents and folders. Later in this chapter you will learn how to rename icons.

Placing documents or applications into a folder is as easy as slipping a sheet of paper into a Manila folder on your desk at home. To illustrate the process, make a copy of the Empty Folder. Now select the application icon Font Mover by dragging Font Mover so that its icon is completely covering Copy of Empty Folder, and release the mouse button. Font Mover vanishes and your information line in the System Disk window now tells you there is one less item than before. Where did Font Mover go? It's inside Copy of Empty Folder. Open Copy of Empty Folder and you'll see Font Mover along with the information that there's one item taking up 13K in the folder. The amount of disk space available refers to the entire disk, not just the folder.



Placing icons into folders is a simple matter of dragging the selected icon over the top of the folder or directly into the folder window itself.

With the Copy of Empty Folder window still open, move the pointer to Font Mover and select it, then drag it out of the folder window and place it back in the System Disk window. You've just taken the application out of the folder and placed it back at the main level of the System Disk window. You can move any documents in this fashion between folders, disks, etc. Close Copy of Empty Folder by clicking in the close box (activate the window first, if necessary), and place the folder back in the System Disk window if you happened to drag it onto the desktop. Using folders is this simple!

Duplicate and Renaming Icons

Whenever you make a copy of a document using Duplicate, the duplicate document is named "Copy of" the original file name. Renaming the document is done by typing its new name directly into the keyboard when the icon is selected, though you can use the "Copy of" name as the name of the duplicate. You can't give the same name to two documents on the Macintosh. If you try, the Finder presents a *dialog box* that asks you to pick another name. Dialog boxes are another Macintosh feature that you will come across in most applications. They appear when the computer needs more information, or when you need a safeguard to let you know what's about to happen. Most dialog boxes have confirm and cancel buttons you click with the mouse to tell the Macintosh to proceed or stop whatever it's doing.

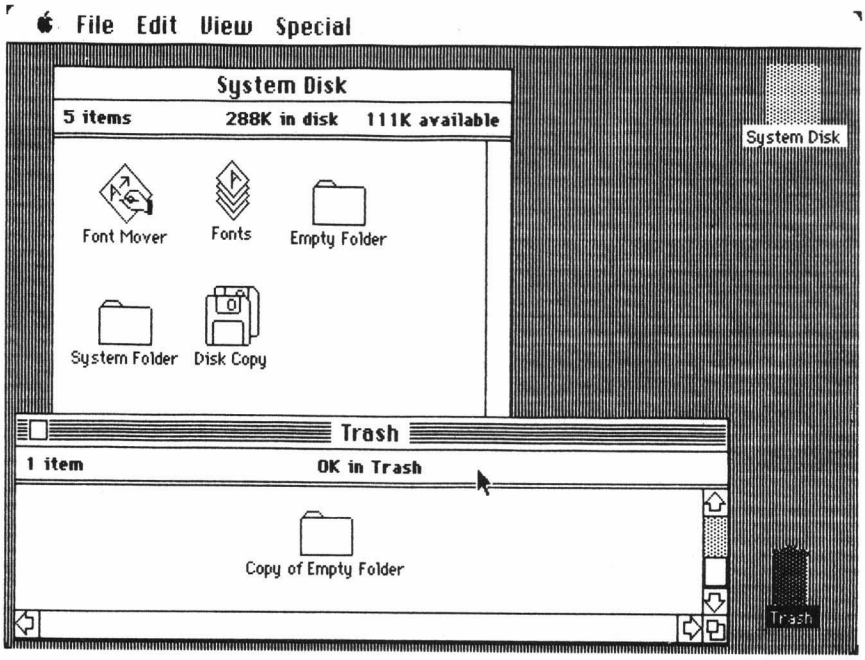
You can use the Duplicate command to copy any Macintosh document. However, not all documents will copy as easily and quickly as the Empty Folder. Large files may take considerable time. Disk space restrictions may also prevent you from copying a document onto the same disk.

Taking Out the Trash

Since you first turned on your Macintosh, you've probably been wondering just what the trash icon on your desktop is for. Like a trash can under your desk, the trash can on the Macintosh desktop is used for removing unwanted documents and applications from your Macin-

tosh disks. To throw something away, you simply select it and drag it to the trash can icon. When you release the mouse button, the dragged icon vanishes and is placed into the trash, exactly like you placed the Font Mover icon into the Copy of Empty Folder.

Since you don't have any need for Copy of Empty Folder, which you made a page or two ago, we'll throw this away as an exercise in taking out the trash. Select Copy of Empty Folder and drag it so that it covers and selects the trash can icon. Release the mouse button and it's gone. To inspect the contents of the Trash, open the trash can icon by double-clicking on it.



Items placed in the Trash window are not automatically deleted. You have the option of rescuing items from the Trash by dragging their icons out of the Trash window.

You probably expected this. The contents of the Trash are displayed in a window, like nearly everything else on the Macintosh. You can resize this window, move it around, and even view it using the options in the View menu. The information line in the top of the Trash window tells you how many items and how large, in thousands of bytes, the contents are. For the Example folder, the size should read "0K in Trash." Example is empty so it takes up no room. If you were to place Font Mover into the Trash (don't!), you would read "13K in Trash." If you have more than one document in the Trash, their sizes are summed and displayed on the information line.

When you're finished looking at the Trash window, close it by clicking the close box or choosing the Close command from the File menu. The Trash window is emptied by the Macintosh in two ways. First, whenever you open an application, like MacWrite or MacPaint, the entire contents of the Trash are removed. When you duplicate a document, as you just did a few pages back, the Trash is also emptied. When you eject a disk from the Macintosh, the Trash is emptied. The Macintosh does not automatically delete everything you put in the Trash when you place it there, as a safeguard to protect you from accidentally removing a precious document or application. If you place something in the Trash you discover you don't want to delete, simply go back to the trash can icon and open it. If you see an icon for the document in question, drag it out of the Trash and place it into the appropriate window or folder. Your document has been rescued. If you open the Trash and don't see an icon for your important document, it is probably lost. This is one reason for making backup copies of all Macintosh disks. In case you inadvertently remove something important, you will still have a copy.

If you need disk space in a hurry and don't want to wait for the computer to empty the Trash, you can override the Macintosh's built-in safeguards by going to the Special menu and selecting Empty Trash, the second command in the list. Whatever is in the Trash will be deleted at that moment. You will hear the disk drive hum as it cleans off the unwanted documents.

In order to protect you even further from losing documents to careless deletion, the Finder displays message boxes that ask you to confirm your decision to remove an application. Use the mouse to click on OK if you want to go ahead and place an application in the Trash or click on Cancel if you don't. Any attempt to dispose of the system files results in a dialog box that asks you to confirm or cancel your decision to remove a system file. Only very desperate circumstances warrant removing system files. Don't delete them unless you have copies and know exactly what you are doing.

More Commands

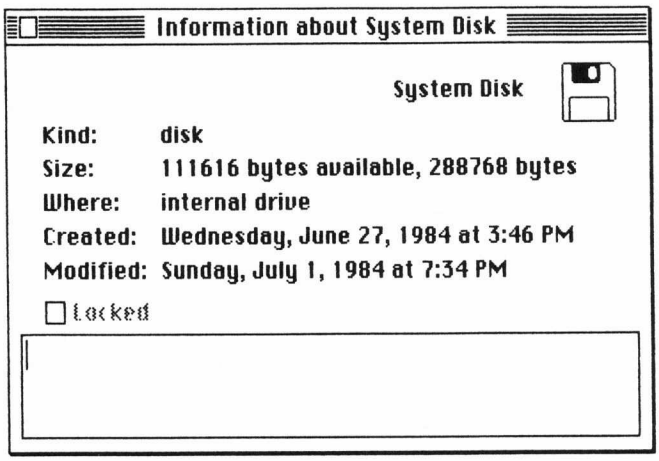
We've looked at each of the command menus on the menu bar of the desktop. In the File menu we've used Open, Duplicate, Close, Close All, and we know that Eject pops the disk out of the Macintosh. Every command in the View menu has been explained, and Clean Up and Empty Trash from the Special menu have been examined. Erase Disk, the third command in the Special menu, is self-explanatory. If you inadvertently select Erase Disk, the Macintosh presents a dialog box asking you to confirm your decision. You cannot, however, erase an entire disk used to start the Macintosh that contains the system files. A dialog box will tell you this. Therefore, it's impossible to accidentally erase all the information on a disk.

The last command in the Special menu, Set Startup, is unique to version 1.1 of the Finder. It allows you to specify which application, like MacWrite or Font Mover, you want to automatically start each time you load a disk into the Macintosh. To use Set Startup, use the mouse to select the application icon you want to start when the Macintosh is turned on. Then simply select Set Startup from the Special menu. The next time you load that disk in the computer, you will bypass the familiar desktop and jump immediately into the chosen application. If you wish to change your startup application back to the desktop, simply select the Finder icon and then select Set Startup. Remember, you will probably have to open the System Folder to expose the Finder icon.

Finishing the File Menu

Get Info, the third command in the File menu, is a quick way to query the computer for information about a particular document, disk, or application. Typical Get Info windows display the kind of document (i.e., folder, system document, etc.), the size, which disk drive the document is currently located in, and the dates on which the document was created and last modified.

To look at an information window from Get Info, open the System Disk window and select the System Folder icon. You can only use Get Info for selected icons. Choose Get Info from the File menu. A large window fills the screen and lists the information described above.


Information about System Disk
System Disk
Kind: disk
Size: 111616 bytes available, 288768 bytes
Where: internal drive
Created: Wednesday, June 27, 1984 at 3:46 PM
Modified: Sunday, July 1, 1984 at 7:34 PM
Locked

Information windows, activated by the Get Info command of the File menu, display important information about the selected icon.

Toward the bottom of the window is a small box with the word "Locked" next to it. When locked, the document cannot be disposed of. If you try to place a locked document in the Trash, the Macintosh presents a dialog box informing you the document is locked and cannot be removed. Locked documents may, however, be moved, duplicated, renamed, or have text added and changed in the comment box of a Get Info window. Documents are locked by clicking on the word Locked or within the small box next to the word Locked. Locking is signified by a small "x" appearing inside the box. Locking is very useful for protecting your work from accidental loss. Final drafts of papers and reports are excellent candidates for locking.

The very last part of the information window is a large rectangle. Inside this space, you can enter up to three lines of comments or notes. This is helpful when making backup disks or files, as you can jot a quick note about the document in the comment box and leave it there for yourself, or anyone else using your disk, to read.

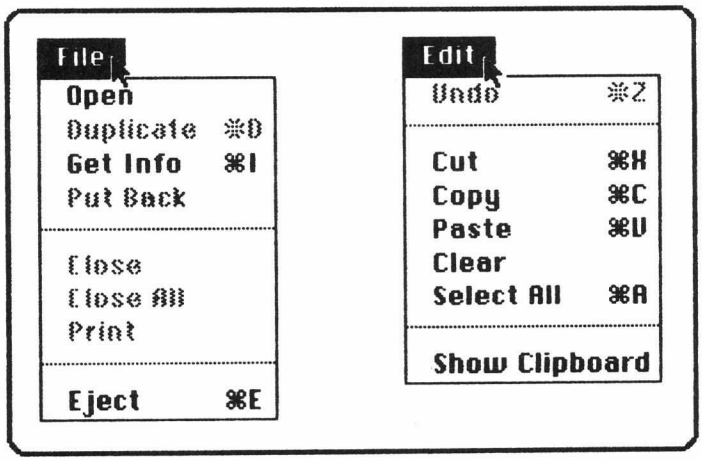
Before closing the System Folder information window, notice that unlike the other windows we've looked at, this one has no scroll bars, no scroll box or size box. Because the information within the information windows is always constant in format and size, there's no need to resize the window. You can, however, move the information window around the screen like any other window by dragging its title bar. You may close the information window by clicking in its close box.

Another command from the File menu that we haven't touched on is Put Back. This command retrieves icons you place on the desktop and returns them to the window from which they came. If you drag the System Folder icon out to the desktop, you can return it to the System Disk window with Put Back. In general, Put Back puts any documents or applications back into the folder window or disk window they most recently came from.

The last File menu command we've yet to examine, Print, is used in conjunction with applications like MacWrite and MacPaint. You can select several documents to be printed and then choose Print from the File menu. The documents will then be printed, one by one.

Using the Keyboard on the Desktop

A final word about the File menu would not be complete without an explanation about the keystroke shortcuts from the keyboard that are available for three commands. Go to the menu bar and expose the pull-down File menu.



Command key shortcuts, when available, are always listed to the right of the command in pull-down menus.

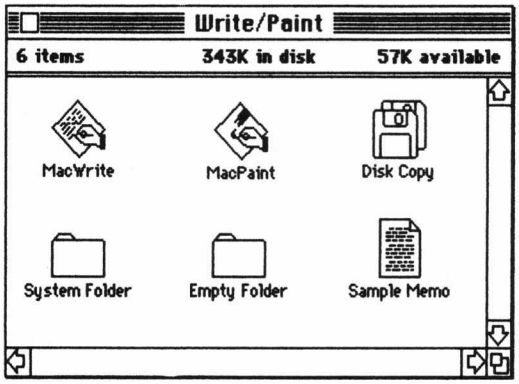
To the right of Duplicate, Get Info, and Eject are the keystrokes you can use to execute these commands. The cloverleaf pattern stands for the Command key located on the bottom left of the keyboard, between the Option key and the spacebar. The letter to the right of the Command key stands for the key you press in conjunction with the Command key to execute a certain command. For example, to Get Info on a selected icon, hold down the Command key and then strike <I>. These keystrokes are useful in certain situations, though you will undoubtedly use the mouse pointer for nearly all your commands in the Finder. All menus in the Macintosh, regardless of application, display their keystroke alternatives, if any, in exactly the same fashion. In MacWrite you will find the keystrokes a real benefit, especially if you are an experienced typist and hate taking your hands away from the keyboard to execute commands with the mouse.

Two Disks on the Desktop

So far, you've been working with the System Disk and its contents on the desktop. If you're using a single disk drive Macintosh, you may be wondering just how you can display and use more than one disk at a time. The Finder lets you place several disk icons on the desktop at once, even though you may only have one disk inside the computer. What's more, each of these disk icons may be moved, opened, selected, etc., just like the single System Disk icon you now have on your desktop.

To illustrate working with two disks, close all open windows on your desktop and eject the System Disk from the disk drive by selecting the Eject command from the File menu (you may also press <Command-E> to the same end). When the disk drive ejects the disk, pull it out of the drive and place it safely aside for a few moments. Look at the System Disk icon on the desktop; it's hollowed out to indicate it is not in the disk drive. Whenever you see a hollowed icon, you know that its disk is not currently in the computer. To see what effect this has on the System Disk window, open it by double-clicking the pointer on the disk icon. When the window opens, you see its three icons are hollowed out. Make sure the System Disk icon is still selected and select Get Info from the File menu. The information window for the System Disk tells you that the disk is not in any drive. Close both the disk and information windows by selecting Close All from the File menu.

Now go to your MacWrite-MacPaint box, the one with the reference manuals, cassette tape, and three disks. Take the MacWrite-MacPaint disk and insert it into the disk drive. After the disk drive stops whirring, a second disk icon, named Write/Paint, appears on the desktop. Double-click on this icon to open its disk window. Almost instantly, a large disk window appears on the desktop, filled with icons. If things in this window seem cluttered and if icons are on top of one another, select the Clean Up command from the Special menu to neatly arrange the contents of the Write/Paint disk window.



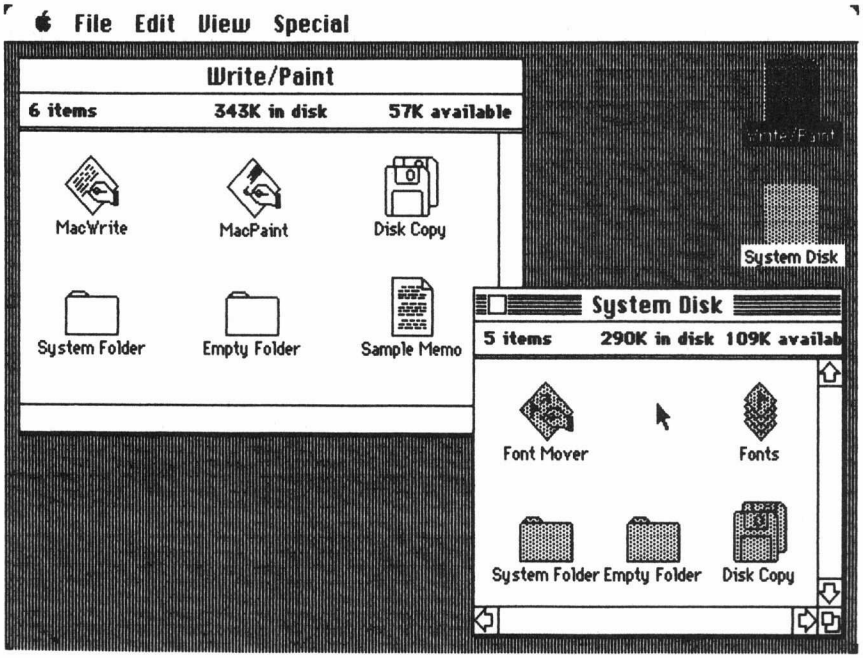
The Write/Paint disk window.

Most of the icons in the open window are familiar to you, but one is new.

Leave the Write/Paint disk window open on the desktop and double-click on the System Disk icon to open its window. As you see, two disk windows are perfectly compatible on the same desktop. If you like, practice some of the techniques you have learned so far, like multiple selecting, using Get Info windows, etc., to see how the Finder manages more than one disk's window and icon at a time. When you've finished experimenting, select Close All from the File menu to clear the desktop. Then select the Eject command by pressing <Command-E> on the keyboard. When the disk pops out of the drive, return it to its safe place in the MacWrite/MacPaint box.

Leave the System Disk out of the Macintosh for a moment and select both disk icons on the desktop using the multiple selection rectangle, then select Open from the File menu. Now that neither disk is in the drive, the contents of both windows are hollow. Close the Write/Paint disk window by clicking in its close box. Finally, insert the System Disk into the drive and watch as its open disk window turns back to normal once the disk is back in place.

Because the Write/Paint disk was not used to start the Macintosh when you turned on its power, you can drag the Write/Paint disk icon to the Trash to remove it from the desktop. Any disk that is not in a drive and was not used to start the Macintosh may have its disk icon disposed of in this manner. Disks used to start the computer, even if they're not in any drive, may not have their icons removed like this.



More than one disk window may be open on the desktop. Notice the System Disk icons are hollow, indicating the System Disk is not in the Macintosh.

Using the External Disk Drive with the Desktop

If you have the Macintosh external disk drive attached to your computer, you can have two available (i.e., not hollowed) disks on the desktop. Having the external disk drive greatly speeds many of the Macintosh's housekeeping chores, such as copying disks and documents. Manipulate the icon of a disk in the external disk drive exactly as you would a disk in the internal disk drive. Open its windows, move documents around, use the View menu, etc.

Editing Text on the Desktop

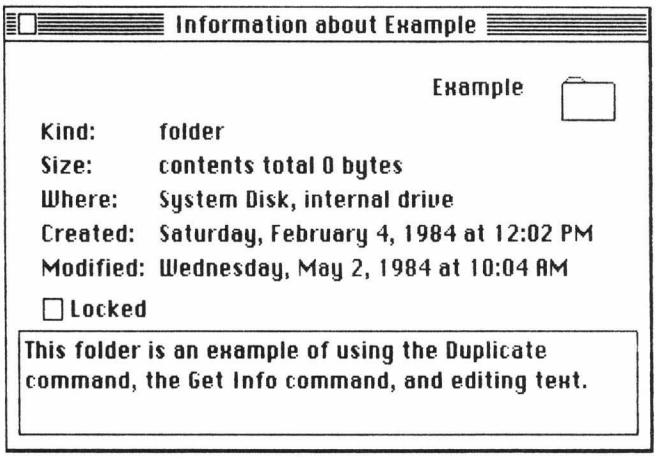
The last important command feature of the desktop Finder is editing text. Though the largest amount of text you'll work with is three lines (filling the comment box on a Get Info window), the editing tools on the desktop are similar to those in MacWrite and MacPaint. On the desktop, editing consists of the smaller tasks of renaming documents and writing comments, while in an application like MacWrite, editing is a larger, more crucial process.

Renaming

Make a copy of the Empty Folder using the Duplicate command from the File menu or by pressing <Command-D> on the keyboard. Remember that the icon to be duplicated must be selected first. Select it by positioning the arrow over the top of it and clicking once on the mouse button. Drag the Copy of Empty Folder icon to an uncluttered place on the desktop. Rename the Copy of Empty Folder by selecting the folder icon and typing in a new name through the keyboard. Let's rename it Example. Store the new name by clicking on the desktop somewhere away from the icon. Select Example again and choose the Get Info command from the File menu or by pressing <Command-I> on the keyboard. Instantly, an information window pops onto the center of the screen listing the attributes of the Example folder.

The blinking vertical bar—called the *insertion point*—in the comment box of the information window marks the start of any text you type. Even MacWrite uses the same blinking insertion point to mark the place where text will be added or edited in a document. Go to the keyboard and type:

This folder is an example of using the Duplicate command, the Get Info command, and editing text.


Information about Example
Example
Kind: folder
Size: contents total 0 bytes
Where: System Disk, internal drive
Created: Saturday, February 4, 1984 at 12:02 PM
Modified: Wednesday, May 2, 1984 at 10:04 AM
Locked
This folder is an example of using the Duplicate command, the Get Info command, and editing text.

Comments and notes are typed directly into the Get Info window comment box.

Notice that the text wraps around the right margin. You don't need to hit <Return> at the end of the line.

In order to edit the text you've just placed in the comment box, you must use both the mouse and the keyboard. The mouse repositions the insertion point so you can add text at any place in the comment box. The keyboard is obviously used either to type in new information, or to delete by using the Backspace key. It can also be used to execute the commands from the Edit menu.

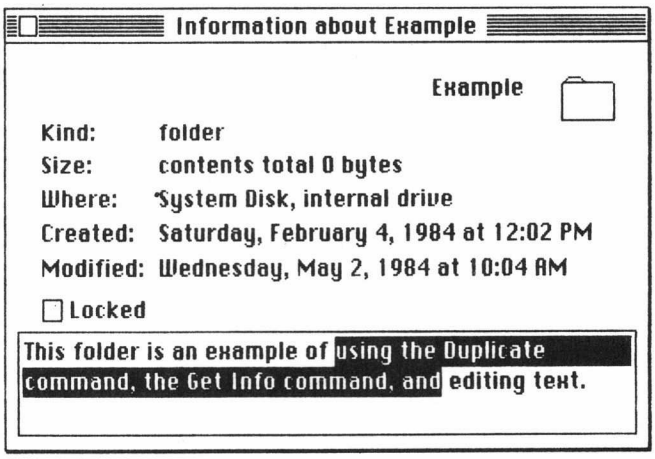
Cut That Out

Before editing anything on the desktop, it makes sense to quickly look through the Edit menu. It's the only menu from which we haven't yet used a command. The first command, Undo, is a safety valve. It lets you cancel most editing functions if you've made a mistake or want to think something over, provided you haven't done anything else on the desktop after making your mistake. Undo, needless to say, is a very useful command. Cut, Copy, and Paste are all text editing commands and all work off of the Clipboard that's one of the system files you saw when you opened the System Folder.

Like a wooden clipboard with a snap on the top, the Macintosh Clipboard lets you clip pieces of text or pictures onto it for use later in the same document or for pasting between documents from different applications. The contents of the Clipboard, however, are volatile. Each time you copy or cut something new to the Clipboard, its previous contents are lost. If you wish to view the contents of the Clipboard, you can choose Show Clipboard from the Edit menu using the mouse pointer. Just to familiarize yourself with the Clipboard, select Show Clipboard. The Clipboard window stretches across the bottom of the screen. Its contents, if any, be they text or pictures, appear in its window. You can inspect the Clipboard window's contents by resizing it with the size box. Close the Clipboard window by clicking in its close box or by selecting the Hide Clipboard command from the Edit menu.

The remaining two Edit menu commands, Clear and Select All do two totally different things. Clear works like the Backspace key in that it deletes any selected text. Select All simply selects *all* icons in the active window, even if some are already selected.

If you've typed the above phrase into the comment box of your Get Info window, you're ready to edit the text. Move the pointer, which is in the shape of an I-beam when positioned over the comment box's text, until it's located just before the "u" in "using." Now drag the pointer, by holding the mouse button down, so that the black band of selected text stops right after the "d" in "and."


Information about Example
Example
Kind: folder
Size: contents total 0 bytes
Where: System Disk, internal drive
Created: Saturday, February 4, 1984 at 12:02 PM
Modified: Wednesday, May 2, 1984 at 10:04 AM
Locked
This folder is an example of using the Duplicate command, the Get Info command, and editing text.

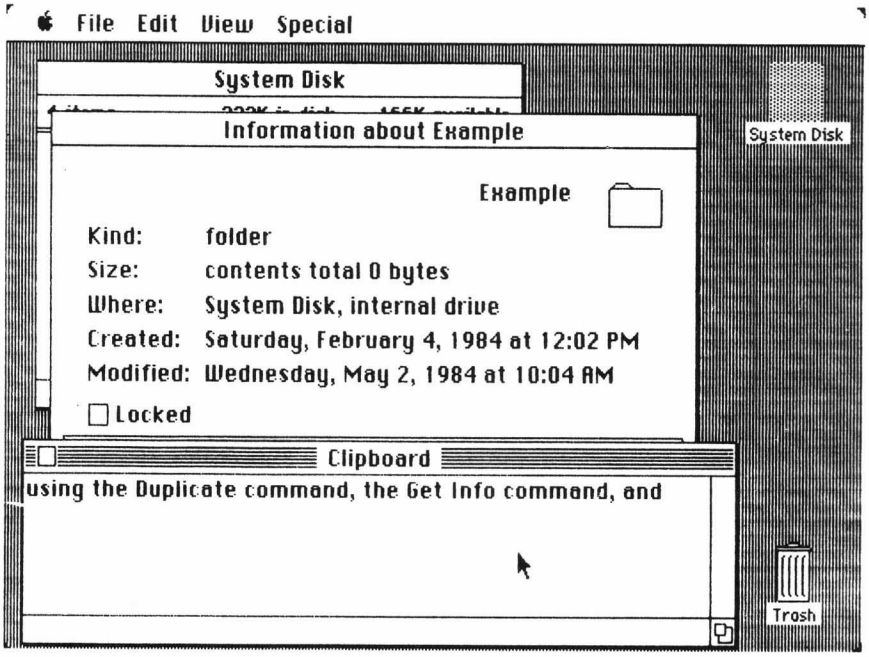
Text is selected for editing by dragging the I-beam over the word or phrase.

Don't worry about keeping the pointer within the comment box. As long as you continue to hold down the mouse button, you can slide the pointer all over the screen without adversely affecting your editing. Only movements of the I-beam within the comment box affect the editing selection.

If you were successful in dragging the black selection across the fragment "using the Duplicate command, the Get Info command, and", then move the pointer to the Edit menu and choose Cut. The selected text should have vanished without a trace and your new, shortened comment reads, "This folder is an example of editing text." Now that you've eliminated the unwanted text, you're left with a slightly less than cogent sentence. Of course, we can fix this by adding text.

Move the I-beam so that it rests just before the "a" in "an." Click the mouse button. This places the blinking insertion point in the middle of the phrase. Type in "used as" followed by a space. If you make a mistake, use the Backspace key at the top right of the keyboard to delete the character(s). Move the I-beam so that it's anywhere past the end of the comment. You can even position it below the line of text. Click the mouse button and you'll see that the cursor is now at the very end of the sentence. Type a space and then the phrase, "It also illustrates". End this phrase with a space.

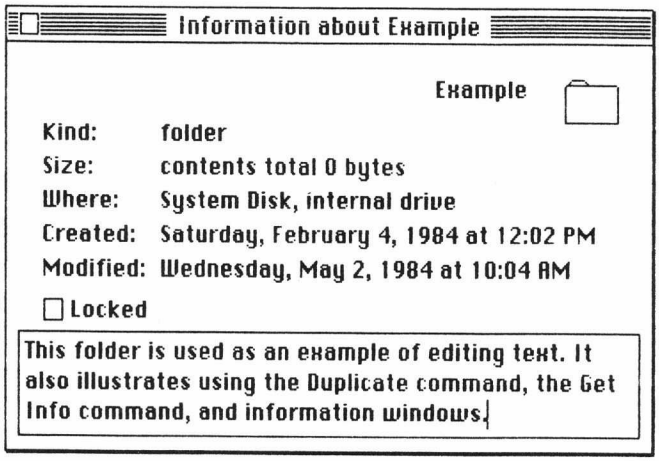
Now we want to retrieve the phrase we cut and place it at the end of the new comment. To check that it's still available to us on the Clipboard, choose Show Clipboard from the Edit menu. The Clipboard window appears with the line "using the Duplicate command, the Get Info command, and".



Selected text that is cut or copied to the Clipboard remains on it until another selected item is placed there.

That means it's still intact. If you don't see this phrase, carefully follow the instructions again. To follow the rest of the example, you might want to quickly place the above fragment onto the Clipboard.

Close the Clipboard window by clicking in its close box and choose Paste from the Edit menu. Note that you can also paste with <Command-V> from the keyboard. No matter how you paste, the contents of the Clipboard should be added to the end of the comment. Finish the comment by typing a space and the fragment "information windows." You've just edited your first piece of text on the Macintosh desktop.


Information about Example
Example
Kind: folder
Size: contents total 0 bytes
Where: System Disk, internal drive
Created: Saturday, February 4, 1984 at 12:02 PM
Modified: Wednesday, May 2, 1984 at 10:04 AM
Locked
This folder is used as an example of editing text. It also illustrates using the Duplicate command, the Get Info command, and information windows.

The final comment in the Example information window.

More Text Editing Fundamentals—Deleting and Selecting

Another way to delete selected text involves using the Backspace key. Unlike Cut, whatever is removed with <Backspace> is *not* placed on the Clipboard, but is instead lost to electronic purgatory. <Backspace> is thus destructive and should only be used when you don't want a copy of your deletion on the Clipboard. The Clear command also deletes without placing anything on the Clipboard. Its effect is exactly the same as that of <Backspace>.

Position the I-beam over the word "folder" in the comment box without pressing the mouse button. There are two ways you can select this word. You can move the I-beam to the beginning of the word and drag across till the end of the word. You can also use a handy shortcut that lets you select individual words (those separated by spaces) by double-clicking the mouse button in rapid succession. Try double-clicking the word "folder" with the I-beam placed on top of it. If it doesn't become selected, try clicking more quickly. Select other words in the comment box by double-clicking on them. When you're finished experimenting, select *folder* by any means you wish. Then hit

<Backspace>. The word vanishes and your comment is automatically reformatted. You might end up with an extra space where *folder* was. You can get rid of it by hitting <Backspace> again. Check the Clipboard just to convince yourself that *folder* wasn't placed there. You should see our original fragment of text.

Most text editing on the Macintosh desktop consists of renaming icons and writing comments. Selected icon names can be edited using Cut, Copy, and Paste just like large blocks of text. Later, when we work in MacPaint and MacWrite, we'll use the Clipboard in exactly the same fashion as on the desktop.

Cleaning Off the Desktop

When you have finished looking at the Get Info window, close it and all open windows with the Close All command from the File menu. Then drag the Example folder from its current postion to the Trash. Release the mouse button when the trash can becomes selected.

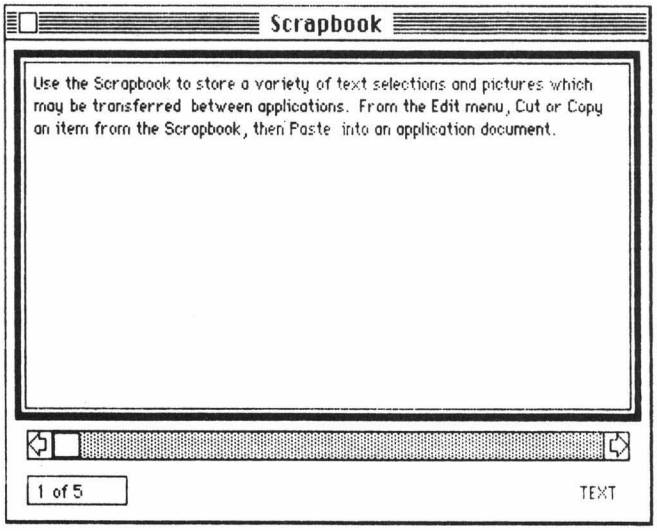
Using the Desktop Accessories

We've now covered all commands available to you through the desktop Finder. There is, however, one last menu, called the Apple menu, signified with a small Apple logo on the left of the menu bar, that has been mentioned only in passing. Inside the Apple menu sit seven desktop accessories that you have available in nearly every Macintosh application. Like the Macintosh's electronic desktop, the desk accessories are modeled on the objects most frequently found on a regular desk. There's a calculator, alarm clock (that actually rings!), note pad, and scrapbook. The other three accessories are unique to the Macintosh desktop: a display of the various characters produced by the Macintosh keyboard, a control panel that lets you customize several Macintosh features to your own tastes, and finally a puzzle that lets you blow off steam in the middle of even the most grueling application.

Finding the Scrapbook

For the most part, the familiar desk accessories work like their nonelectronic counterparts. Make sure all windows are closed on the desktop, then move the pointer to the Apple menu to scan the different accessories. The Finder, the first option, simply displays the version and release date of the Macintosh Finder. Click anywhere on the screen to get rid of this display. The Scrapbook is the first desk accessory that's familiar in function to its nonelectronic counterpart—a regular scrapbook—but it has some special features that integrate it into the Macintosh environment. Essentially, the Scrapbook is a Clipboard that retains whatever you paste into it until you decide to remove it. The Scrapbook is open-ended in that you can continue to cut or copy pictures or text to it and it will automatically append the last addition to the end of its file. Remember that the Clipboard only holds one picture or piece of text at a time, and it is lost as soon as a new addition is made. The Scrapbook, however, stores all your additions, and it is an invaluable tool for holding work you refer to frequently.

Open the Scrapbook by sliding to Scrapbook in the Apple menu and releasing the mouse button. Unlike other windows, the Scrapbook window has no scroll bars for the window itself, but it does have a scroll bar for the contents of the window.

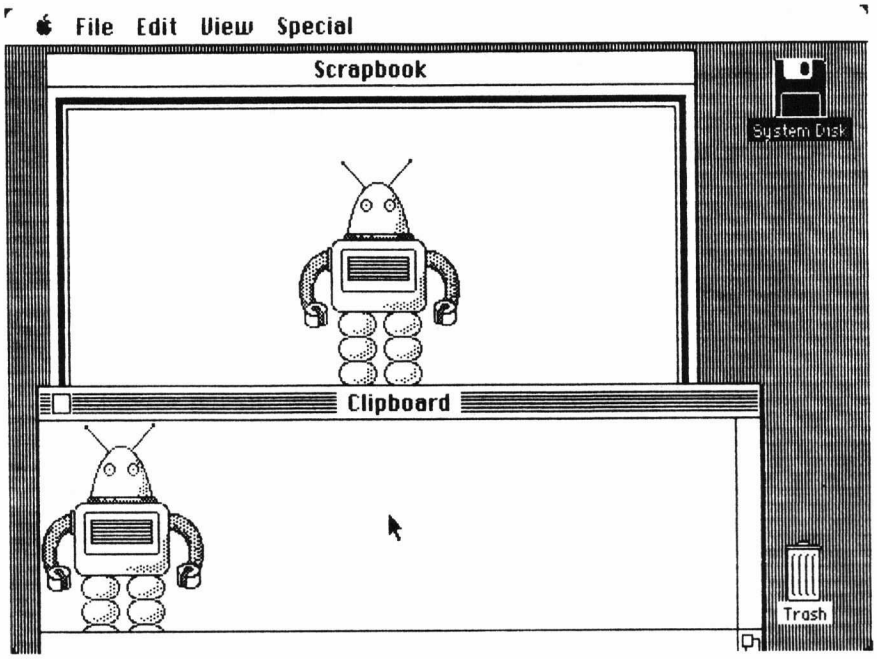

Scrapbook
Use the Scrapbook to store a variety of text selections and pictures which may be transferred between applications. From the Edit menu, Cut or Copy an item from the Scrapbook, then Paste into an application document.
1 of 5
TEXT

The Scrapbook is used for long-term storage of both text and pictures.

You can, of course, move the Scrapbook window by dragging its title bar. Paging through the contents of the Scrapbook is accomplished by one of three methods: dragging the scroll box, clicking in the scroll bar area, or clicking on the arrows at the ends of the scroll bar. Clicking on the scroll bar itself or on the scroll arrows moves the Scrapbook one "page" at a time. Dragging the scroll box pages through in larger increments. Drag to the middle of the scroll bar to get to the middle of the Scrapbook, the beginning to get to the beginning, etc. On the bottom on the Scrapbook window are two pieces of information. One tells you what picture number you are viewing out of the total number of pictures in the Scrapbook; the other tells you whether you're viewing a piece of text or a picture.

The five pages in the Scrapbook give you an idea of just what you can store there. Later, when this book introduces some applications with MacWrite and MacPaint, we'll make extensive use of the Scrapbook and Clipboard. Flip through the pages using the scrolling techniques you learned on the desktop. The pictures of the fish and the robot are just two exciting examples of the power of MacPaint. If you have version 1.1 of the System Disk, then you won't see the fish. Instead you'll see a MacPaint rendition of the Macintosh logo and a stylish bar chart along with the robot.

When you're finished browsing, stop on a picture among the samples that you like. The current picture or text that's showing on the Scrapbook is automatically selected so you don't have to do anything to select a page from the Scrapbook other than look at it. Go to the Edit menu while the Scrapbook is still on the desktop and select Copy. If you selected a picture, then the disk will go to work for a moment. Inspect the contents of the Clipboard by selecting Show Clipboard from the Edit menu.

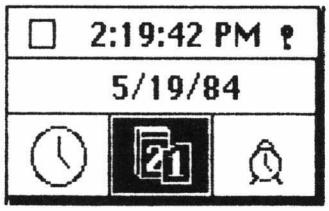


Items from the Scrapbook are placed on the Clipboard by scrolling to the item and selecting Cut or Copy from the Edit menu.

Not surprisingly, the Clipboard holds a carbon copy of your favorite item from the Scrapbook. You can copy and cut from the Scrapbook to the Clipboard in this fashion. Likewise, you can cut or copy a slice of text or a picture from MacWrite or MacPaint to the Clipboard and then copy it to the Scrapbook. When you're finished looking at the Scrapbook's pictures, close it for the time being by clicking in its close box.

The Alarm Clock

Next in the Apple menu is the Alarm Clock. This is a handy way to keep track of the time as well as the date. You can, of course, set the clock to ring at a specified time so that you make an important meeting or get to class on time. Open the Alarm Clock, then drag it to the middle of the screen for easier viewing. Placing the pointer anywhere on the time will let you drag the entire clock.



The Macintosh Alarm Clock desk accessory. The bottom three icons set the time, date, and alarm time.

Unless you or your Apple dealer set the clock to the correct time and date, it probably needs to be adjusted. Move the mouse pointer to the small latch on the right-hand side of the clock and click on it so that it points toward the bottom of the screen. A small pull-down menu appears with three icons to be used for setting the time, date, and alarm time respectively. The date shows in the middle band of the Alarm Clock, underneath the time. To change the date setting, position the pointer over the month. The arrow turns into a cross hair when it's centered on the numbers. Click the mouse button. The month number is selected and an up arrow and a down arrow appear to the right of the date. Click the up arrow to advance the number of the month. Click the down arrow to do the opposite. Holding the button down causes the numbers to scroll by rapidly. When you've set the month correctly, move the pointer to the select calendar icon in the bottom band of the Alarm Clock and click once. Set the day of the month and the year in similar fashion.

Setting the time is equally simple. Click the bottom left clock icon to display the hour, minute and second. Follow the same procedure for setting the time as you did for setting the date. Click on any incorrect number and change it by using the up and down arrows. You may also switch AM to PM and vice versa using the pointer. Click once more on the selected clock icon to record the change.

If you want to set the alarm, click on the Alarm Clock icon at the right of the pull-down Alarm Clock menu. Again, change the time by moving the pointer over the hours, minutes and seconds, and clicking up or down with the arrows. There is one additional feature on the Alarm Clock. On the left of the alarm time is a small switch. When the switch is

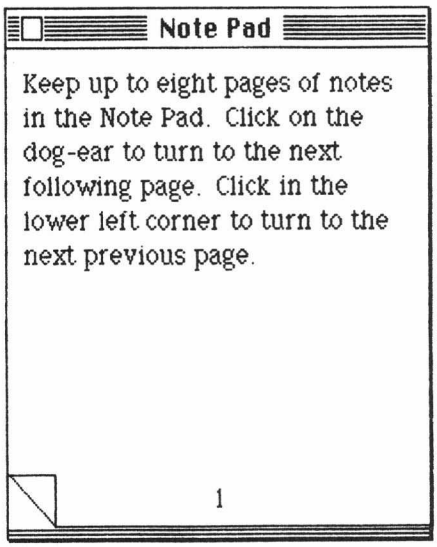
down, the alarm will not sound. When the switch is up, the alarm will go off at the set time. Click the switch up to see the effect it has on the Alarm Clock icon. When the alarm does go off, it rings the computer bell once and then continues to blink the Apple in the menu bar until the alarm switch is flipped off or the alarm time is reset.

The alarm will ring, no matter what application you are currently working in. If you set the clock with one disk in the machine—let's say the System Disk—and then switch to the MacWrite/MacPaint disk, you don't have to reset the clock. When you set the time and date, they are recorded by the internal clock of your Macintosh and remain set even while your computer is shut off or has its plug pulled. The battery at the back of the computer keeps the clock running at all times. As with the Scrapbook and most of the desk accessories, you can copy the time and date to the Clipboard using the Edit commands for pasting into a document. Even if the time alone is showing, and the pull-down menu is hidden from view, both the time and date are copied to the Clipboard.

Note Pad

Another Scrapbook and Clipboard-like item among the desk accessories is the Note Pad. This feature lets you jot down quick notes, phone numbers, or anything else that will fit on eight small sheets of the computer's electronic paper. It also gives you full access to the Edit menu and the Clipboard, and allows you to paste material from it into a document you are creating.

Open the Note Pad in the familiar manner and read the contents of the first page. Unless they've been removed, there will be a half page describing the functions of the Note Pad.


Note Pad
Keep up to eight pages of notes in the Note Pad. Click on the dog-ear to turn to the next following page. Click in the lower left corner to turn to the next previous page.
1

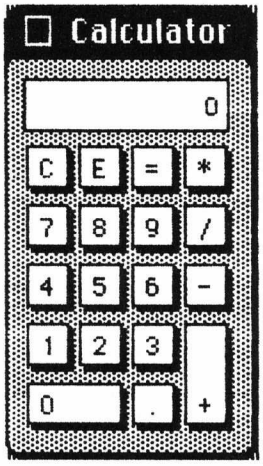
The Note Pad lets you keep up to eight pages of notes.

Click on the dog-ear at the bottom left corner of the pad to move a page ahead or back. Editing text in the Note Pad is exactly the same as editing in the comment box of an information window. Move the I-beam around the page until you find your insertion point, then click. Select text by dragging or by double-clicking individual words. Cutting, copying, and pasting are all accessed through the Edit menu or by using keystroke shortcuts. As an example of copying from the Note Pad, select all the text on the first page, then select the text and choose Copy from the Edit menu. Inspect the contents of the Clipboard with Show Clipboard from the Edit menu and you will indeed see what you just selected. When you've seen enough, close the Clipboard window by clicking in its close box.

Essentially, the Note Pad acts like an abbreviated version of a computer word processor. Whatever you store on the Note Pad remains there until you cut it away. It's a very useful tool for quick notes and important figures. Click in the close box of the Note Pad when you are finished using it.

Calculator

The fourth desk accessory is a calculator that you may call up at any time. Figure the sales tax on an item you're ordering in a MacWrite document and either write it into the letter or copy it to the Clipboard for use in several places in a document. Open the Calculator from the Apple menu.



The Calculator performs basic arithmetic functions. The results may be copied to the Clipboard using the Copy command.

Operating the Macintosh Calculator is as easy as working on a home calculator. You may enter numbers and math symbols through the keyboard or you may use the pointer on the screen to punch in figures by clicking once on each key of the Calculator. C clears all entries, E enters exponents as powers of ten. There is no constant function on this calculator as there is on many home models. Therefore, when you multiply 2 times 2 and get 4, you can't just hit the equals sign to get 4, 8, 16, etc. Whenever you close the Calculator, the number on its display is retained and displayed again when the Calculator is opened.

As mentioned, one of the nicest features of all the desk accessories is that you can use them in any application you're currently using. Transferring information from desk accessory to document is as simple as copying to the Clipboard and then pasting from it. Using the Calculator, for example, you could calculate a percentage of a price that

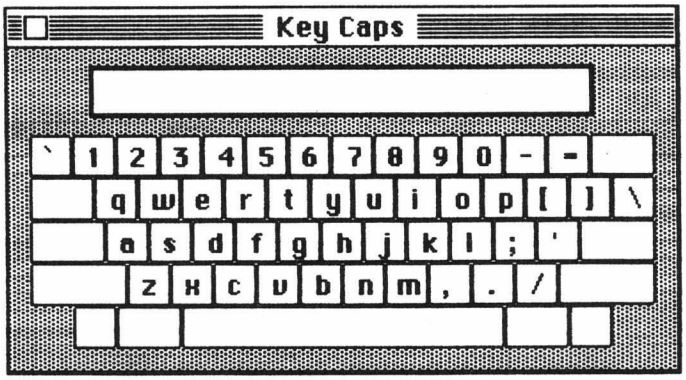
you might need to use several times in a MacWrite memo.

If you need to find 21% of $69.55 in a hurry and your mental calculator is a bit rusty with percentages, simply call the Calculator from the Apple menu, then punch in 69.55 with the pointer by pressing the mouse button once for each digit and the decimal point. Next hit asterisk (*), the Calculator's multiplication symbol, then punch in .21. Click on the equal sign for the answer: 14.6055. Now slide the pointer to the Edit menu and select Copy. Just to verify that the number was transferred to the Clipboard, select Show Clipboard from the Edit menu. There it is, 14.6055, ready to be pasted into any document.

Take note of the fact that you didn't have to select the numbers in the Calculator display for copying to the Clipboard. They are automatically selected. If you're in doubt as to whether you must select something to copy, check the Edit menu. If the Copy, Cut, and Clear commands are dimmed in gray text, then they're not available at the moment, telling you that you either have to select what you want to edit first, or that editing isn't available. Check all the menus in this way to see exactly what you can and cannot do in a given situation. Select Close All from the File menu to close both the Clipboard window and the Calculator.

Capitalizing on the Keyboard

Key Caps is a desk accessory unique to the Macintosh. It displays all the various characters produced by the Macintosh. Open Key Caps by sliding the pointer to it in the Apple menu and releasing the mouse button. When first opened, the Key Caps window displays the lowercase letters of the keyboard along with the numbers and the punctuation symbols.



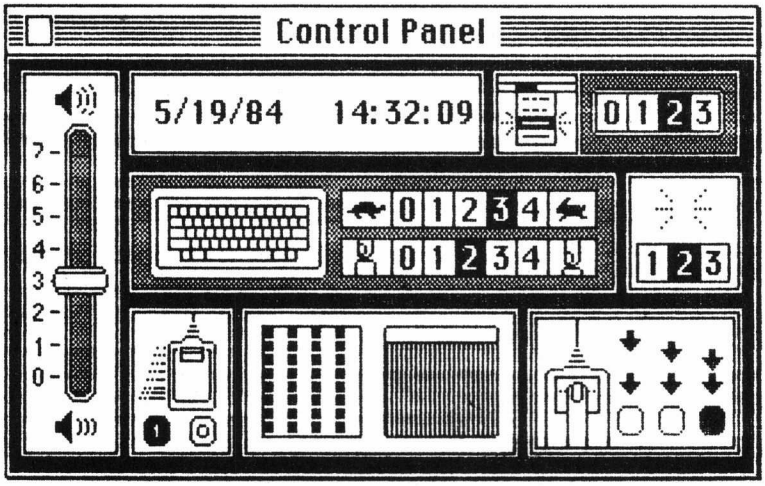
Key Caps lets you view the entire Macintosh character set by pressing the Shift key and the Option key. Text in Key Caps may be selected and copied to the Clipboard.

If you press the Shift key, the alphabet characters in the window all become upper-case, and the shifted functions for the top row of the keyboard are displayed. You can type in any character with the keyboard and it will appear in the small rectangle below the title bar. The mouse pointer may also be used to type characters by clicking on the appropriate key on the screen. You can edit text in this space just as you have elsewhere on the desktop. All the Edit menu commands are available for selected text, as are the Clipboard and Scrapbook via the Clipboard. Use <Backspace> if you want to clear off the character display line.

Using the Key Caps window for viewing only the regular upper and lower-case keyboard functions is to miss half of the hidden magic of the Macintosh keyboard. If you press either <Option> key at the bottom left and right of the keyboard, you are presented with an entirely new character set consisting of Greek letters, mathematical symbols, special printing symbols, and characters from foreign alphabets. By pressing the <Shift> and <Option> keys together, you see the last part of the Macintosh character set, which adds fourteen more characters, including some more printing symbols and upper-case Greek letters. For a complete overview of the Macintosh character set, refer to *Appendix A: Optional Character Set* in the *Macintosh* reference manual. Note that not all symbols are available in every font on the Macintosh.

Though Key Caps can be used as a quick reference tool that you can call from within any application, you can also use it to create a short phrase, up to twenty-eight characters long, and employ the special symbols you need right in Key Caps. This phrase can then be selected and copied to the Clipboard for inclusion in a document any number of times.

Suppose you want to send the folks at Apple a thank-you note telling them how wonderful you think the Macintosh is. If you're going to be official about this, then you know that the name Apple is a registered trademark of Apple Computer, Inc. Therefore, whenever you use the name Apple in your letter, you will want it to have the proper trademark symbol alongside it. This is an easy task with help from Key Caps. Type the word Apple into the Key Caps window, then hold down the Option key while you search the special characters for the registered trademark symbol. It's located under the R. Thus, finish your Apple by pressing <Option- R>. Next, select the text in the little box by dragging the I-beam across it. Select Copy from the Edit menu and your official Apple name is now ready for inclusion anywhere in your fan letter. Close Key Caps by clicking its close box.



The Control Panel customizes several Macintosh features, such as the desktop pattern and the loudness of the bell.

Taking Control

Open the Control Panel from the Apple menu by sliding the pointer to Control Panel and then releasing the mouse button. As soon as it appears on the screen, you'll probably be taken by the design of this space-age utility. Unlike other windows that have appeared on the screen, the Control Panel window neither displays familiar document icons nor does it let us edit text within it. It does, however, place at our fingertips, inside any application, the controls for setting most of the basic operations you see and use on the Macintosh. Through the Control Panel you can customize the rate at which the insertion point blinks, how quickly the characters on the keyboard repeat when held down, and set the tracking for the mouse that's most comfortable for you. You can even change the pattern of your desktop from standard solid slate-gray to any other pattern you desire.

The most prominent Control Panel feature is the clock at the top middle. It displays both the date and the time. The time, however, is displayed in military or twenty-four-hundred-hour format (where 1 PM is 1300, 7 PM is 1900, etc.). You can change the date and time in exactly the same way you did the alarm clock. The vertical bar on the left of the control panel lets you set the volume of the Macintosh bell, the one that rings when you first start the machine or when you're prompted with a dialog box. Use the mouse to position the arrow—which becomes a cross hair on the Control Panel surface—over the knob on the scale, and click. That rings the bell at the current setting. Drag the bell up to setting 7 and release the mouse button. That is as loud as you can make the bell. Setting the volume to 0 silences the bell but blinks the menu bar. Loud environments may call for setting 6 or 7, while quiet ones, like a library, might only require setting 0 or 1. In most environments, 2 or 3 is most comfortable.

Customizing the Mouse

Moving the mouse about your clean table area will soon become second nature to you if it hasn't already. The Control Panel makes it possible for you to adjust the way the mouse responds (tracks) to your movements. Move to the setting box next to the bottom of the volume control. The default setting for mouse tracking is 1. This makes the pointer skip every other dot, or pixel, on the Macintosh screen, thereby letting you race across the screen with a minimum of wrist movement. Setting 0 moves the mouse at a constant rate, causing it to traverse every single dot on the screen. Experiment with setting 0. You'll notice at once that you can't zip across the screen as deftly as with setting 1, which also minimizes the desk space required for the mouse. Setting 1 seems a logical choice for almost all mouse applications, but there are some functions in MacPaint that might benefit from setting 0.

The other way to customize your mouse is to set the speed for double-clicking the mouse button. The bottom right box of the Control Panel lets you set the speed at which you double-click the mouse. The leftmost setting, with the two down arrows rather far apart, tells the mouse to read two somewhat slow, successive clicks as a double-click. The rightmost setting, with the two down arrows on top of one another, reads only very fast, successive clicks as a double-click. This setting minimizes mistakes caused by inadvertent double-clicking. Unless you double-click quite rapidly, the Macintosh ignores your command.

Keyboard and Cursor Control

The large panel in the center of the Control Panel allows two adjustments to be made to the Macintosh's keyboard. The top scale, with the turtle and rabbit icons, lets you vary the rate of repeating keys on the keyboard. If you press and hold down a key, it repeats its character at a

specific rate determined by this setting. Lower numbers cause keys to repeat more slowly than higher numbers. Setting 0 turns off repeating. The bottom scale, with the finger icon, adjusts the touch of the keyboard. Higher numbers cause a light touch to make repeating characters. Low numbers do just the opposite. Zero turns off repeating altogether. Touch typists will find this feature useful when they work in MacWrite. Unless you already have specific requirements for the repeating rate and touch of the keyboard, it makes sense to set these controls after you have used MacWrite for a while and gotten accustomed to the Macintosh keyboard. Nonetheless, I find 3 an acceptable setting for the repeat rate and 2 just fine for touch.

Immediately to the right of the keyboard control panel is a blinking insertion point with three switch settings underneath. The formal name for this control is the Rate of Insertion Point Blinking. How fast do you want the insertion point to blink? Setting 1 produces a painfully slow blinking insertion point that could get lost in a page of text. Setting 3 produces a slightly nervous blinking insertion point. My preference is setting 2. Experiment on your own.

Directly above the cursor control is a scale that adjusts the blinking rate of a selected command. If you've noticed, every time you select a command from one of the pull-down menus, the selected command blinks for a moment before the menu shuts and the effect of the command begins. Clicking 1, 2, or 3 gives you visual feedback in the form of a quick succession of blinks from the command menu before execution. Zero eliminates any blinking whatsoever and immediately executes the command you've selected. Setting 2 is my preference because it's not as slow as setting 3 and it lets you see exactly which command has been selected. Sometimes you might inadvertently move the pointer and select the command above or below the one you want. If you make such a mistake, you can catch it by watching the command blink, which alerts you to this kind of error.

Designing Your Desktop

The last control option lets you select one of several stock background patterns for your desktop. Anything other than the standard gray can be annoying, especially when you're trying to find the name of a selected icon that blends into the background. Click on the small white bar above the gray sample. Each click on the right side of the bar

advances the patterns one step, while each click on the left side backs them up one step. Survey the patterns until you come across something that catches your eye. To see what the entire desktop will look like in this pattern, click on the area underneath the white bar. Once you've surveyed all the patterns, find the familiar gray desktop pattern and activate it once more.

You can also design your own desktop pattern using the magnified dots to the left of the pattern box. Once you have covered some features of MacPaint, you'll learn how to do this. For now, it's best to leave well enough alone. Close the Control Panel when you have finished using it.

The Desktop Puzzle

The last desktop accessory is a small puzzle that lets you slide fifteen numbered tiles around a sixteen-position board. The object, of course, is to align all the tiles in ascending or descending numerical order. Click on any tile you wish to move. If you're playing with the puzzle at school or work, and think you're under scrutiny from supervisors or jealous peers, click in the puzzle's close box to hide the evidence.

Printing for Reference

If you have the Imagewriter printer, the contents of the screen, the arrangement of its windows, and the information buried in various documents can all be committed to paper using two print functions of the Macintosh. You can print the contents of the entire screen if you wish, or simply print out the contents of the currently active window at any time and in any Macintosh application. To print the entire screen, trash can and all, press <Caps Lock> to engage it. Then hold down <Command> and <Shift> while you strike <4>. You will hear the printer go to work making a verbatim copy of the screen.

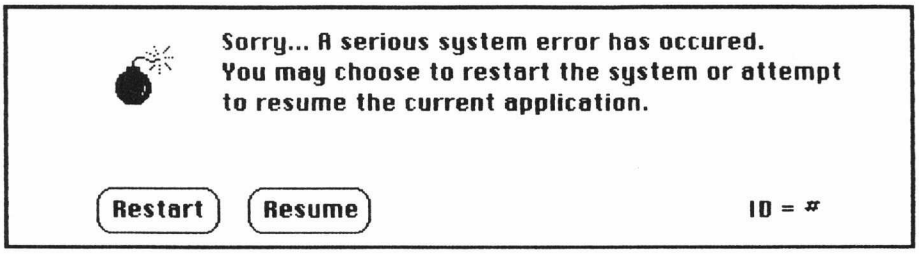
If you only want to print the active window, make sure <Caps Lock> is up and hold down <Command> and <Shift> while striking <4>. Again, the Imagewriter will print out an exact duplicate of the active window on your screen.

Printing out screens can be useful when you want a permanent record of a disk's contents or all the files in a particular folder. Printing out screens is also a good way to learn about the Macintosh Finder and windows. You can pencil in any notes you have regarding the Finder and always have them on hand for reference while you're running your Macintosh.

When Things Just Fall Apart

Though your Macintosh is a brilliantly designed and manufactured computer, there are going to be times when something goes wrong. It's the nature of computers. Personal computers like the Macintosh are designed so that Murphy's Law, "If anything can go wrong, it will," applies more to the computer's owner than to the machine or its software. In general, high-quality computers like the Macintosh are trouble-free and should give you years of reliable service. The applications or software you run on your Macintosh, however, are less reliable. This is not to say that MacPaint and MacWrite don't work. Software products for the Macintosh from Apple and from other respected companies are of the highest quality, but there's always a chance that you will find a single, obscure bug in a program and shut down or crash the Macintosh.

When something does go wrong, the Macintosh presents a box, complete with time bomb, informing you that a serious system error has occurred, and usually gives you two options to return to the normal working environment.


Sorry... A serious system error has occured.
You may choose to restart the system or attempt
to resume the current application.
Restart
Resume
ID = #

This message warns you something has gone wrong with the Macintosh. Selecting Restart has the same effect as turn the computer's power off and on. Resume continues the current application without restarting the Macintosh.

Clicking the Restart button in the error message box is the same as turning the Macintosh's power off and on again. Restarting the system causes you to lose any changes you might have made to a document in an application where you didn't save those changes to the disk. The contents of the disk, however, are not affected by restarting the system. Your second option, Resume, usually lets you save the changes you made to a document and then immediately sends you back to the desktop Finder. Resume is obviously less drastic than Restart and should be selected whenever available. There are times, however, when your only alternative is Restart.

When you run across a serious system error, try to remember *exactly* what you were doing before it occurred. When you restart the Macintosh or return to the desktop with Resume, re-create the situation to repeat the error. If you can consistently cause the computer to shut down by a particular sequence of actions, you know what to avoid for the time being. In some cases you might have found an error in the application, in others, the problem may be related to a worn or damaged disk. Most cases of serious system errors, however, seem to be the work of erratic gremlins who delight in producing inexplicable glitches.

Chapter 2
Working with Disks

Paying Dues

Disks are remarkable devices in that they can hold a large amount of information in a small but usable format, but they are fragile and must be treated with even more care than you would a fine audio record or cassette tape. If you wear out a favorite record, you don't have any qualms about paying a few dollars for a new copy. Programs and applications, like MacWrite, MacPaint, and Macintosh BASIC, however, are simply too expensive to risk losing to accidental deletion or destruction, and the work you do on your own with these programs is unique. You can't go buy another copy of your great novel from the software store where you purchased MacWrite.

For the Life of the Disk

Because you trust all the work you do on your Macintosh to the disks, you should know just how long the disks will last under normal conditions. Sony, who manufactures the Macintosh disks, says the disks will last for approximately two million (!) revolutions. Many computer manufacturers, however, recommend that you retire disks after about one and a half million revolutions. Of course, you don't have to sit and count

each spin of the disk as you use the Macintosh. On the average, the Macintosh disks spin at about 400 revolutions per minute (r.p.m.). At 400 r.p.m. you would have to leave your disk spinning in the Macintosh disk drive for a little less than 85 hours nonstop to rack up two million revolutions. And even then you might not have to discard your disk. The Macintosh Finder automatically repairs damaged disks (those that aren't dropped in coffee and the like), extending the life of a disk and the information on it.

Still, nothing lasts forever, and one of the few dues you have to pay with the Macintosh, or with any personal computer for that matter, is making copies of your disks. If you have a single disk drive Macintosh, there are several other frustrating dues to pay. But take heart. In this chapter, I'll cover as many as possible and guide you around them with a minimum of pain, and then you'll be ready to enter the exciting world of the Macintosh's two flagship programs, MacWrite and MacPaint. If you own version 1.1 of the System Disk and Finder, then making backup copies with a single disk drive Macintosh is positively painless when you use the Disk Copy utility which comes with the newest version of the System Disk. In the section that follows, I'll first outline the procedure for backing up disks *without* using the Disk Copy application for readers with the original System Disk and only one disk drive. Even if you have Disk Copy, read through the next few pages. The section on initializing disks applies equally to owners of both versions of the System Disk.

Backing Up

Backing up disks, that is, making copies of valuable information, should become second nature to you after using this book. There's no way I can overemphasize the importance of making copies of any work that might be of some worth to you. It's quite simple to go back to a disk and clean off unwanted documents. It's impossible to restore a precious document or file that's been erased accidentally. One copy of your important documents is not enough. You never know when your dog or cat will take an interest in computers and destroy a disk in the process. Of course, the most common culprit in disk accidents is the computer user. In other words, you and me. A careless spill of coffee could send an entire disk filled with information to the electronic void. Most accidents around computers occur when the user is tired or frustrated, or both. If you find yourself in this situation, quit for the night. Your computer will be there in the morning.

If you have a single disk drive Macintosh and don't have the benefit of Disk Copy, backing up diskettes is a slow but manageable process. Because the information you are transferring between disks must reside in the Macintosh's memory while you change disks, you have to make several swaps before the backup process is complete. Only a small amount of a disk or document's information can be stored in memory at one time. Each swap reads a little more off of the disk and stores it until the duplicate is inserted. What is in memory is then written onto the new disk.

Because backing up with the single drive Macintosh requires a bit of tedious work, you might be tempted to forgo making your backup to save time and effort. If you do, you're flirting with disaster. Imagine what would happen if your only copy of the System Disk were destroyed. If you have a particularly sympathetic Apple dealer, he might make you a new copy for free. But if you bought your system through the mail you would be out of luck. Or consider what would happen if your new spreadsheet disk were damaged. Unless you have a friend with the same program who's willing to make you a copy, chances are good that you'll find yourself shelling out fifty or sixty dollars for a replacement. Two boxes of blank disks cost roughly three percent of the total price of a standard Macintosh system. That three percent might be the best investment you'll ever make.

Though disks obviously store a large amount of information, computer designers, perhaps by their nature, find ways to use as much disk space as possible before you even get started. When you look at your System Disk (version 1.0), you'll see that 234K is already stored on the disk. Most of this space is occupied by the system files that run the desk accessories: the desktop, the printer, the windows, etc. So before you've even started, your disk is 66 percent full. This is true of all application disks. Your MacWrite and MacPaint disk comes with nearly 350K of applications and system files. Obviously, the bulk of material you create must be committed to a disk that you designate solely for the purpose of holding new documents and nothing else.

Initializing

The blank disks you buy for your Macintosh are uninitialized, that is, they are not in a format that the Macintosh disk drive can read. The *Macintosh* reference manual likens blank disks to a parking lot without painted parking space lines. Before cars can be parked, the lines must be painted. Likewise, in order for you to use these blank disks, you must *format* or *initialize* them.

Initializing and Copying—First Steps

Initializing a blank on which to copy the System Disk requires that we apply our knowledge of selecting and looking at the command menus. Close all open windows on the desktop. Make sure the selected System Disk icon is showing on the desktop, and use the mouse to move the pointer to the File menu. Press and hold the button. Look at the pull-down menu and slide the pointer to the last command, Eject. When the pointer is positioned over Eject, the command becomes selected. Lift the mouse button. You will hear a slight hum, which is the Macintosh disk drive closing any open documents and storing information on the disk about the windows. A moment later, the disk drive will eject the disk. You can now pull it out of the drive safely.

If the above instructions didn't work, you probably have something open on the desktop that prevents the disk from being ejected. Make sure that everything on the desktop is closed and that the System Disk is selected, then try again.

If you were successful in removing the System Disk, then you're halfway through the process of initializing a disk. Take a new, unformatted blank disk directly from a box of new disks, and insert it into the disk drive. After a moment of checking the new disk, the Macintosh displays a dialog box that says:

> **This disk is unreadable:**
> **Do you want to initialize it?**

You are given two *buttons* to click within the dialog box. Buttons, which appear throughout all Macintosh applications in dialog and information boxes, are used to confirm or cancel an action, such as saving a document or initializing a disk. One says Eject and the other says Initialize. Make your choice using the mouse pointer. Note that you cannot work anywhere else on the desktop while the dialog box is active. Try moving the arrow around outside the box. Each time you

press the button, the computer beeps, letting you know that you must respond to the box before working on the desktop again. Position the arrow over the Initialize button and click the mouse button. You should hear the disk drive go to work while the dialog box reads "Initializing disk . . ." When complete, the dialog box asks you to name the disk. For now, click the OK button. The computer will give the disk the name Untitled. You will rename it later. If you want to name the disk at this point, just type in the name through the keyboard, using <Backspace> to correct any typing errors, then click the OK button.

Once the disk drive settles down, you see a disk icon on the desktop for the new blank disk. Its name is Untitled and it is currently selected. The Macintosh desktop can hold a great many disk icons, even though the drive itself only holds one disk at a time. If you encountered problems formatting your blank, there are two possible explanations. First, if your new disk caused the computer to place a disk icon on the desktop automatically, your disk was already initialized.

Locked Disks

Second, if you worked through most of the initialization process and were greeted with "Initialization failed!" in the box as the disk spat back out at you, then your disk is probably *write-protected* or *locked*. Locking is a means by which you prevent information on a disk from being altered. Most applications like MacPaint and MacWrite won't work with a locked disk because the applications frequently need to read and write from the disk. Locking a disk also eliminates the ability to move, erase, duplicate, and rename anything on the disk. To check for a locked disk, take the disk out of the drive and turn it upside down, with the round metal hub face up and the sliding metal shield toward you. In the upper left corner of the disk you see a small track with a sliding plastic box in it. The disk is locked when the box is fixed at the top edge of the disk. If the box is fixed in the position away from the edge, then the disk is not protected. If your troublesome blank is protected, slide the plastic box back toward you, covering the hole. Click the OK button in the dialog box and reinsert the blank. This time, it should initialize without incident.

Making Another System Disk

If you've been looking around your desktop, clean it up so that only the System Disk, Trash, and your Untitled disk appear. If your Untitled disk doesn't appear on the desktop, eject the System Disk, if necessary (go to the File menu for Eject), and insert your Untitled disk.

We're now ready to make a complete copy of the System Disk on this new disk. Move the arrow to the System Disk icon and select it by clicking on the picture. Notice that the icon is fuzzy or hollow, and is filled with dots.

This signifies that the disk is not currently in the computer. If your System Disk is in the computer, then the Untitled disk icon looks fuzzy or hollow. Drag the System Disk icon by holding down the mouse button and sliding the mouse till the outline of the System Disk covers the Untitled disk icon. As you cover the Untitled disk, it becomes selected. Release the mouse button. A dialog box will appear with the message:

> **Completely replace contents of "Untitled" (internal drive) with contents of "System Disk" (not in any drive)?**

Click the OK button to confirm the message by moving the pointer to it and pressing the mouse button.

You're now beginning a series of disk swaps. The first dialog box asks you to insert the System Disk. Do so. The Macintosh keeps track of the number of files remaining to be copied in a separate information box at the very top of the screen. When the System Disk is inserted, the computer reads part of the disk into memory. The next dialog box asks you insert the Untitled disk. Follow the prompts by inserting the correct disk when the computer asks for it. Don't worry if you accidentally insert the wrong disk. The Macintosh will again ask you to insert the proper disk.

If your System Disk is in nearly the same state as when you got it, then you probably made fourteen separate swaps to copy the disk completely. (If you own the updated version of the Finder, version 1.1, and still copied the disk without using Disk Copy, then you probably made fewer swaps.) At the end of the copying process, the Untitled disk should be left in the disk drive. If not, eject the System Disk and insert the Untitled disk. Select the Untitled disk by moving the pointer to it and clicking. Since Untitled doesn't really say much as a name, it makes sense to rename this new disk. Renaming is quite simple. Type the new name on the keyboard (remember the disk must be selected).

The old name will vanish and the new name will replace it. If you make a typing mistake, use the Backspace key at the top left of the keyboard to correct your error. Disk names are limited to twenty-seven characters and cannot contain a colon (:). Neither should they start with a period (.). Aside from these restrictions, a name can contain any characters you type on the keyboard. Note that the Macintosh does not distinguish between upper and lower-case letters for names. Therefore, "My Disk" is equivalent to "my disk", but "mydisk" is equivalent to neither of these (the absence of the space makes it unique). It's a good idea to give different names to disks that you will be using together. If you have a disk called MacBASIC that holds your copy of Macintosh BASIC, and you have a disk on which you store nothing but your Macintosh BASIC programs, don't name both disks MacBASIC. Name the programs disk something like BASIC Programs. This ensures that you won't confuse either yourself or the Macintosh. Document names obey the same restrictions as disk names, with the exception that they may be up to sixty-three characters long.

Because you won't be using your System Disk copy along with the original, rename the Untitled disk System Disk. When you're finished typing, move the pointer off of the disk and click anywhere on the desktop. This stores the disk's name. You now have a complete backup of the original System Disk.

Take the System Disk that came with your Macintosh and lock it by sliding the plastic write-protect tab out to the edge of the disk. This prevents accidents and makes you unlock the original before using it. Place the original System Disk in a safe, dry place. You never want to use this disk except for making copies. A truly cautious person will make two backups of all important disks so that the originals will never be used except in the rare case that both backups are lost or destroyed. Double-backing can be expensive, though, so it's left merely as a suggestion.

Using Disk Copy

Because copying disks with a single disk drive Macintosh is so tedious, Disk Copy was created to make backing up disks a swifter, more efficient process. Disk Copy lets you copy nearly any disk, regardless of the amount of information on it, with four simple swaps. In

addition, Disk Copy makes *exact* duplicates of disks (unlike using the disk icons for copying which simply replaces the contents of one disk with another).

Since Disk Copy is so useful for single disk drive Macintosh owners, it makes sense to put a copy of the application on all your working disks. Disk Copy only occupies 6K of disk space and is well worth the investment. Copying Disk Copy to another disk requires that you select its icon, drag it to the icon of the disk you wish to copy it to, and release the mouse button. The Macintosh will present familiar dialog boxes asking to insert the appropriate disk for the copy.

To use Disk Copy, open the System Disk window and select the Disk Copy icon. Then choose Open from the File menu to start the application. Once Disk Copy is running, you are presented with an instruction screen on how to make backups. Simply follow these instructions. In short, what you will do is click the OK button to begin Disk Copy and then follow the prompts along the bottom of the screen for inserting the disk you are copying and the disk you are copying to. Also, you do not need to insert initialized blanks when using Disk Copy, it will automatically initialize disks for you. At the end of the copying process you may proceed by clicking Continue or exit Disk Copy by clicking Quit. When using Disk Copy don't be alarmed by the bizarre displays you see on your screen. As explained in the instruction page of Disk Copy, the memory that normally controls the screen display is freed for Disk Copy. When you quit the application your screen will return to the normal desktop pattern.

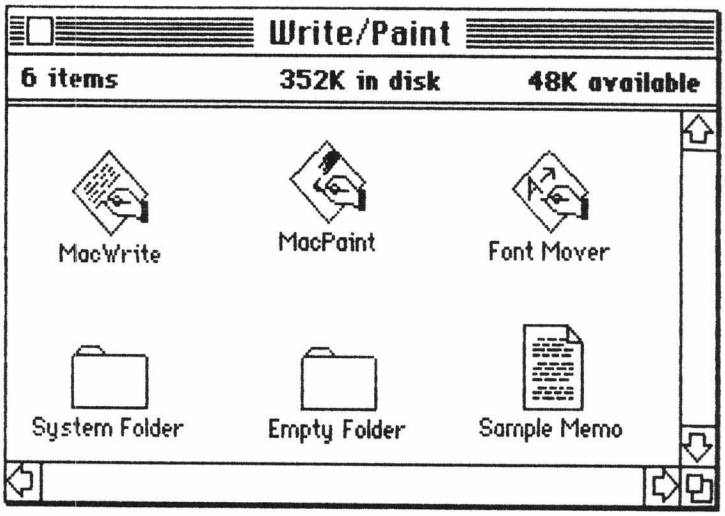
Backing Up MacWrite/MacPaint

Though your MacWrite/MacPaint software package comes with two program disks, along with its own Guided Tour disk, it still makes sense to create a working copy of the MacWrite/MacPaint disk. The guidelines are exactly those you followed for making your System Disk backup. Nonetheless, I'll quickly run through the backup process specifically for MacWrite/MacPaint.

Looking at MacWrite/MacPaint

Once you've finished making your System Disk copy, close all open windows by selecting Close All from the File menu and eject the disk using Eject, also found in the File menu. Turn off the Macintosh's power and wait for a minute before turning it on again. (If you have installed the

programmer's switch on your Macintosh, press the RESET button instead of switching the computer's power off and on.) When you see the disk icon and the question mark on the screen, take one of the master copies of MacWrite/MacPaint out of its box and insert it into the disk drive. After the drive reads in the information, a disk icon appears on the Macintosh desktop with the name Write/Paint. Open the disk's icon by double-clicking on the Write/Paint disk icon. The disk window displays the following items: MacWrite, MacPaint, Font Mover, the System Folder, and a sample MacWrite document called Sample Memo. (If you are using an updated version of the Write/Paint disk with the version 1.1 of the Finder, then Font Mover is replaced by Disk Copy.) Notice that Sample Memo's icon is new. It doesn't appear on the System Disk. This icon represents a Macintosh word processing document. When you write letters, papers, articles, etc., with MacWrite, all your icons will look like this sheet of paper.



MacWrite document icons, such as Sample Memo, differ from application and folder icons.

While we're looking at icons, notice that the MacWrite and MacPaint icons are similar to the Font Mover icon in that both show a hand at work. This is the symbol for an application. The folders are old hat by now. The System Folder, in case you're curious, does contain the exact same files as the System Folder on the System Disk. To verify this, open the System Folder by double-clicking on it for a quick look inside.

Once you've finished browsing through the new icons on the MacWrite/MacPaint disk, close any open windows and eject the Write/Paint disk from the disk drive. Insert an uninitialized blank disk into the drive and tell the computer you want to initialize the disk by clicking on the Initialize button. You don't have to rename the disk until after you make your backup copy.

Leave the Untitled disk in the disk drive if it's already there. If the computer made you replace the Write/Paint disk, leave that in the drive. Drag the Write/Paint icon so that it covers and selects the Untitled disk icon. Release the mouse button. You will be queried by a dialog box with the message:

> **Completely replace the contents of "Untitled" (internal drive) with the contents of "Write/Paint" (not in any drive)?**

Click the OK button in the dialog box. Another way to confirm your decision is to simply hit <Return> or <Enter> on the keyboard. In general, any dialog box that asks you to confirm or cancel an action can be confirmed by pressing either of these keys.

As you start your backup process, the Macintosh will prompt you throughout to insert the Write/Paint disk and the Untitled disk. Though the dialog box at the top of the screen says there are ten files (assuming you're using the original Write/Paint disk) to copy, you will need to make more than ten swaps between disks. In fact, if your Write/Paint disk is untouched from the factory, you will have to make between twenty and twenty-two swaps to copy the Write/Paint disk completely (newer versions of Write/Paint made in this fashion require a few less swaps). But don't be discouraged. The entire backing up process only takes five minutes and is well worth the effort.

Once your new copy of Write/Paint has been made, place your original out of the way for safekeeping. If you haven't renamed your new copy, do so by typing in a new name. I named mine Write- Paint, just to distinguish it from the original disk.

Copying Write/Paint with Disk Copy

If you own Disk Copy, then it makes sense to use it to copy the Write/Paint disk. Open Disk Copy from the desktop by double-clicking on the icon to start it. Then insert the Write/Paint disk as the source disk and follow the prompts for inserting a destination disk. Remember, you need not use an initialized blank as the disk you are copying to. Disk Copy automatically initializes disks. Once your copy is made, you can select it for renaming.

Some Limits

As you have seen for yourself, backing up disks on the Macintosh without the aid of Disk Copy exposes one of the machine's very few shortcomings. As a single disk drive machine, swapping while copying is inevitable. The Macintosh has only 128K worth of free memory, and about 90K is available at any one time. For disks like Write/Paint, which take up over 350K in applications and system files, be prepared to swap disks in and out at least a dozen times.

Another less important but potentially annoying habit of the Macintosh is to ask for a disk that you're not currently working with. If you still had the System Disk icon on your desktop when you started making your Write/Paint backup, it's very possible that the computer asked you for the System Disk at some point. Whichever disk starts the system becomes the resident or startup disk. When you insert another disk with the exact same system files, the computer insists on asking for the original startup disk. Only when you've opened an application from a second disk and then closed it will the first disk's icon disappear and the current disk become the new resident. In the course of your work with the Macintosh, you might be prompted by the computer to insert a disk that doesn't seem relevant to your project at hand. Just insert the disk and continue. Again, a bit of patience will see you through. Of course, you can always buy a second disk drive and leave the worry behind.

Two Disk Drives and Backing Up Disks

Making backup copies of disks with the Macintosh external disk drive attached to your computer is much simpler and more efficient than backing up with only the internal drive. This alone should be

reason enough for you to go out and purchase the external drive. Over time, as you use your Macintosh for a growing number of tasks, the addition of the second disk drive is essential to both the work you do on the computer and to your sanity. Swapping disks quickly becomes very tiresome.

The procedure for making backup copies with the second disk drive is as follows: Place the disk you want to back up—in this case the System Disk and the Write/Paint disk—into the internal disk drive as usual. Insert your blank or initialized disk in the external drive. Icons for both disks appear on the desktop. Then simply drag the System Disk or Write/Paint disk icon (or whatever you want to copy) over the top of the blank disk icon and release the mouse button. The copying process should proceed without any interruptions from the Macintosh. When the backup is finished, rename it, and store your original disk in a safe place.

Startup Disks

Both the System Disk and the Write/Paint disk contain the System Folder, which we found to contain the files that run the Macintosh, its desk accessories, and the Imagewriter printer. Disks with these system files are known as Startup disks because you can turn on the Macintosh, insert a startup disk, and get the computer up and running. Disks without system files cannot be used to start the system and they cause the Macintosh to "crash" or shut down.

You can run applications only from a startup disk. Therefore, if you make up your own application disk, you must include the system files on it.

Making Startup Disks

If you want to set up a few startup disks with your blanks, it's a very simple process. Turn on your Macintosh with any disk containing the System Folder. You can use either the System Disk or the Write/Paint disk. Insert your new disk. If it hasn't been initialized, follow the guidelines for initializing a disk. Rename the disk at the end of the initialization process. Startup One might be a good working name. Once the new disk's icon appears on the desktop, open the disk that has the system files on it. Select the System Folder (if you're working on a disk without a System Folder and all six system files visible in the disk

window, make one by duplicating and renaming the Empty Folder and drag all the relevant system files into it; the System Folder makes creating a startup disk much easier) and drag it to the Startup One disk icon and release the mouse button. You'll probably have to make about a dozen swaps if you're using a single drive Macintosh. Once all the system files are copied, open the Startup One disk and verify that it contains the six system files: System, Finder, Imagewriter, Note Pad File, Clipboard File, and Scrapbook File. These six files occupy nearly 220K (209K if you have the newer version) worth of space on your disk, leaving room for about ninety pages of text.

Data Disks

Since system files are essential for running the Macintosh, it would seem to make sense that all disks you create should have the system files on them. While true for application disks, it's not true for data or information disks, which you will use only to store documents. These disks, which you initialize in the regular fashion, are completely blank except for the requisite copy of the Empty Folder. These disks can store 399K worth of documents. All of your long-term and backup storage should be done on these data disks.

Because your Write/Paint disk comes with the three applications—MacWrite, MacPaint, and Font Mover—along with the system files, there's little room to store any document aside from the one you're working on. Fortunately, the designers of Macintosh and the authors of MacWrite and MacPaint anticipated this potential trouble spot and designed a workable solution to the problem. When you're in an application like MacPaint, you can save your work at any time by choosing Save from the File menu. Before the computer actually writes to the disk in the computer's internal disk drive, you have the option of ejecting the current disk and inserting a data disk or switching to a data disk located in the external disk drive, if you own one. By doing this, you store your work on a separate disk with plenty of room, and you don't risk getting stopped in the middle of an important document because of disk space limitations. Once your work is saved, you reinsert the application disk, and you're on your way again.

Making Data Disks

To make a data disk, all you need to do is initialize and rename an unformatted blank. If you want to use a disk that already has information on it, you can erase that disk using Erase Disk from the Special menu on the desktop. Don't try to erase a startup disk. The computer will warn you it can't be erased because its system files are in use. Startup disks—those with system files but not used to start the Macintosh—may be erased easily by choosing Erase Disk from the Special menu.

Disks in This Book

Throughout the rest of this book's tutorial, helpful hints and warnings will be integrated into the discussion. Since the text will ask for more concentrated attention on your part than it did in the beginning, each time a new wrinkle or variation using disks is encountered, you will test it on the machine. This lets you experience the nuts and bolts of working with applications.

While working with the Macintosh, one sensible format for storing work files is to save them on a separate data disk, and then to back up the data disk at the end of every work session. This ensures that you always have room for your work on the application disks and always have two copies of everything you do.

To this end, you should initialize at least two blank disks from your new box, making sure they do not contain the system files. Name all your data disks differently. If you're stuck for a name, Work Disk 1, Work Disk 2, etc., will tide you over until you feel more creative. Attach the disk labels to these disks. If you use one disk to store only MacPaint documents and one to store only MacWrite documents, then you might want to say so on the disk label. Mark your backup copy as such, so that the disk is always used for secondary storage.

Gaining Space—Removing Font Mover from the Write-Paint Disk

As you've worked through the first two chapters of this book, you have seen the Font Mover application icon on both the System Disk and on the original Write/Paint disk. Font Mover, as previously mentioned, is an application that lets you copy and remove the various typefaces or fonts from the System file (located within the System Folder) in order to gain extra disk space. For the purposes of using this book and learning about the Macintosh, you do not want to use Font Mover. Part of the Macintosh's magic is its various fonts and sizes, which let you decorate and accent your writing or pictures in a unique way. Removing fonts with Font Mover before you even see and use them is counterproductive and deprives you of one of the most exciting Macintosh features. When you have finished this book and have a better understanding of both what the Macintosh does and what it can do for you, you might want to use Font Mover. If so, detailed instructions for using it are located in Appendix B of this book.

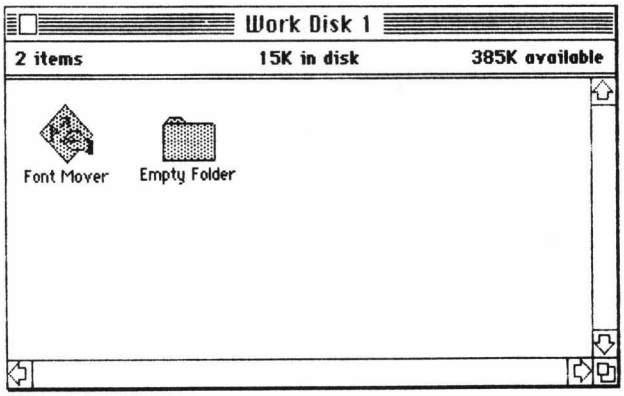
If you are using an updated version of the Write/Paint disk, then Font Mover is not present on your disk. Instead of Font Mover the Disk Copy utility program is present. Because Disk Copy is so useful and occupies relatively little disk space, it's generally a good idea to leave it on your working copy of Write-Paint. It might come in handy at some point.

Copying Font Mover to the Data Disks

Even though you have at least five copies of Font Mover between your two backup disks and the originals, you'll copy Font Mover from the Write-Paint backup disk you just made to one of the data disks you've also made in this chapter. This not only stores Font Mover, it also gives you some "hands on" experience with copying applications between disks.

To begin the process of copying Font Mover to the data disks, start the Macintosh with the Write-Paint backup disk. If you are working through this chapter in order, you will want to close any open windows and eject whichever disk is in the drive. Then either flip the power switch off and on, waiting a few seconds between flips, or press the RESET button on the programmer's switch, if you have installed it. This clears the Macintosh and lets you load the Write-Paint disk's system files into the computer.

Once the Macintosh has been started with the Write-Paint disk, select Eject from the File menu or use the <Command-E> keystroke for the same result. Then insert one of the data disks you made into the disk drive and wait for its disk icon to appear on the desktop. Now open the Write-Paint disk window to view the six document and application icons and place the pointer over the Font Mover icon. Drag it out of the window onto the data disk icon, then release the mouse button when the data disk icon is selected. The Macintosh will present you with an information box telling you there is one file to copy and asking you to insert the Write-Paint disk. Follow the Macintosh's instructions as you have when copying entire disks. When the copying process is complete, open the data disk icon and examine its contents. In addition to the Empty Folder you will see the Font Mover icon.



Store Font Mover on Work Disk 1 for safekeeping if you have the original version of Write/Paint. Learn to use Font Mover by reading Appendix B.

Close the data disk's window and eject the disk from the disk drive if it's in the computer. Replace the Write-Paint disk in the drive, then drag the Font Mover icon from the Write-Paint disk window to the Trash and release the mouse button. You will be asked to confirm your decision to remove an application. Click the OK button. Open the Trash window by double-clicking on it to view the Font Mover icon within the window. Leave the Trash window open, select Empty Trash from the Special menu, and watch the Font Mover icon disappear from the Trash window. Also notice that you have gained 13K worth of disk space by removing Font Mover. Leave the Write-Paint disk in the disk drive when you have finished copying Font Mover to the data disk. You will use Write-Paint shortly to begin work in MacPaint.

Copying Between Disks with Two Disk Drives

If you have the external disk drive connected to the Macintosh, start the computer with the Write-Paint disk and place your data disk in the external drive. Then open the Write-Paint window, drag the Font Mover icon to the data disk icon, and release the mouse button. The file is automatically copied to the data disk. Follow the above instructions for placing the Write-Paint Font Mover icon into the Trash and then deleting it.

Converting Version 1.0 Finder Disks to Version 1.1

Disks which use the original version of the Finder may be updated with version 1.1 quite simply. Because the updated system files are all located in the System Folder, you can simply drag the System Folder from a version 1.1 System Disk to a disk containing the initial version of the system files. If you make this change, the new system files will overwrite, i.e. replace, the older ones.

However, if you have precious work stored in the Note Pad, Scrapbook, or Clipboard, copying the System Folder from a new System Disk onto your older disk will replace these three files, thereby causing you to lose your work. If this is the case and you still want to update your disk with the new system files, open the System Folder on the new System Disk and select the Finder, System, and Imagewriter icons using the multiple selection techniques you learned in chapter 1. These three files may then be dragged to the destination disk and will update their older counterparts. Updating disks in this fashion insures that none of your work stored in the Note Pad, Clipboard, or Scrapbook is lost.

The Wonderful World of Macintosh Applications

You have successfully completed the first section of this book, covering everything from turning on the Macintosh to using disks. You're about to enter the magic world of Macintosh applications. The third and fourth chapters of this book are in-depth tutorials with MacPaint and MacWrite. They show you how to do everything from opening the application to printing out documents. Presumably you're reading the book in order. Reading out of order won't cause you problems, but you might miss some of the references made about the similar features of both applications.

Chapter 3
Introducing MacPaint

Without question, MacPaint is one of the most remarkable application programs ever to be offered for a personal computer, and it is unique in that it is the work of one programmer, Bill Atkinson. Unlike computer companies that insist on team design, Apple lets its most imaginative people create outside of the daily bureaucracy. The result is exemplary software and hardware bearing the personal stamp of the people who made it. MacPaint never could have been written by a team of software developers, no matter how impressive their individual talents. MacPaint bears the mark of the inspired imagination of its creator, who designed, programmed, reprogrammed, and dreamed about it in his sleep. Undoubtedly, MacPaint influenced you to buy your Macintosh. Now you have the opportunity to learn and apply one of the most exciting programs ever written for a personal computer.

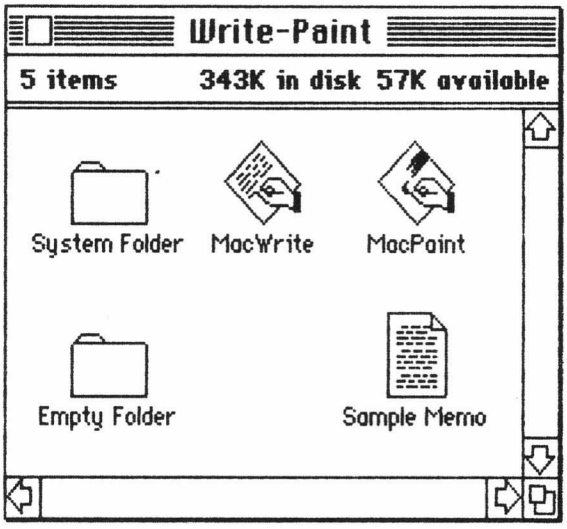
The Daily Ritual

After following the first two chapters, you should have a good idea of the routine you must perform to get your Macintosh up and running You may, if you like, leave your Macintosh turned on all day and night, as long as you turn down the screen brightness when you're not using

the computer, so that the screen display won't "burn" into the picture tube. Although this option is available, I turn the Macintosh off when I'm sure I'm not going to use it for several hours. I don't like to leave appliances running for no good reason. However, it's not a good idea to turn the machine on and off repeatedly all day long, so leave it on for as long as you think you're going to be using it, even when you go out to lunch or for a quick walk. If your computer is on now, you might want to shut it off and then turn it back on again (wait at least a minute before doing so) to start the MacPaint section with a clean slate. You may instead press the RESET button if you have installed the programmer's switch. Now insert the Write-Paint backup copy into the disk drive. The familiar desktop will quickly appear showing the Write-Paint disk icon, any other disks you might have been using, and the Trash. Keep your data disks handy, too. When you save your first MacPaint document, you'll want to save it on a data disk.

Open Up

Open the Write-Paint disk icon by double-clicking on it. You should have six items in your Write-Paint disk window: MacWrite, MacPaint, System Folder, Sample Memo, Disk Copy, and Empty Folder. (Write-Paint work disks made from the original version of the Write/Paint disk will not have Disk Copy on them unless you copied it there from an updated System Disk or Write/Paint disk.)



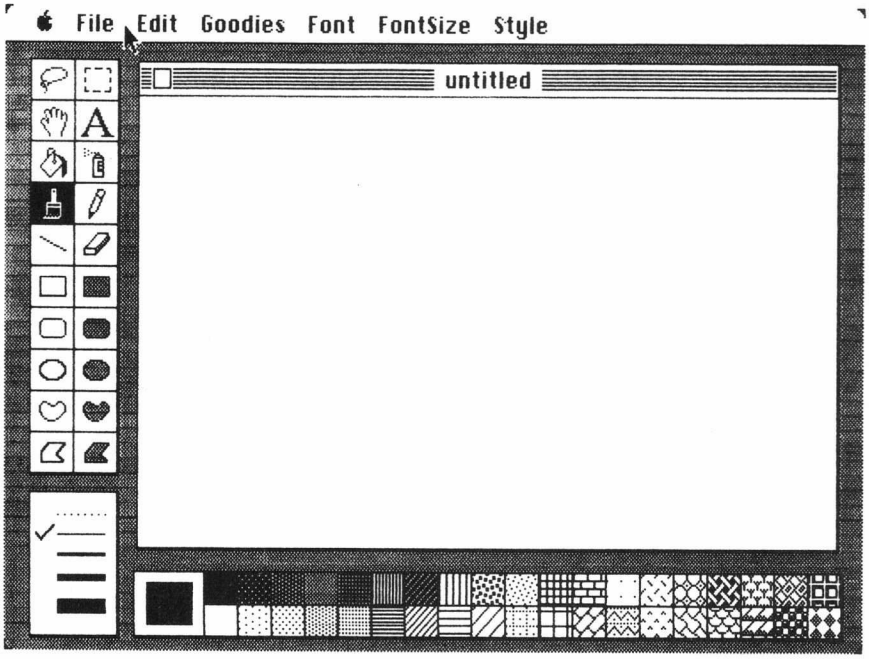
Removing Font Mover from the original Write-Paint disk gives you nearly 60K of free space for your own work.

Since you'll be working with MacPaint in this section, you might be interested in some information about the program. Select the MacPaint application icon in the window and choose Get Info from the File menu. The information window tells you that MacPaint is slightly over 60K in length. If you're using the initial release of MacPaint, you'll see that it was created in January of 1984. The newer version of MacPaint, version 1.3, is dated May 2, 1984. That's the date the last modifications were made to the program. The program itself took nearly two years to develop. Close the information window. To open MacPaint, double-click on its icon. All applications may be opened in this manner (or you may elect to select the application icon and choose Open from the File menu). Documents may also be opened directly from the desktop by double-clicking on them (or using Open). Double-clicking on a document icon opens both the document and the application that created it together.

After you have opened the program, the Macintosh disk drive goes to work loading most of the program into memory. Notice that the pointer changes to a wristwatch asking you to wait until the loading process is complete.

Inside MacPaint

Once MacPaint has been loaded, you are presented with the MacPaint workspace. Take a moment to scan the screen. Though quite a bit of the information on the screen is new, you already know how to use most of MacPaint right now! In the center of the screen is the MacPaint window with the name untitled. Above the window is a familiar menu bar with some recognizable menus like File, Edit, and the Apple menu. There are, however, four new menus at the top: Goodies, Font, FontSize, and Style. These are unique to MacPaint.



The opening MacPaint screen. Notice the names for the pull-down menus and the fixed MacPaint window.

Along the left edge of the MacPaint screen is the MacPaint tool palette. These twenty options are your utensils for drawing, painting, adding text, filling, and shading your MacPaint creations. Below the tool palette is a smaller box with five lines inside of it. Alongside one of the lines is a check mark. These are the border and line width settings for several of the predefined shapes you can use in MacPaint. The current width is always checked off. Spanning almost the entire bottom of the screen are thirty-eight patterns you use to paint, fill areas, text, shapes, etc. You are not limited to these thirty-eight, however. In the final section of the MacPaint chapter, you'll learn to edit these patterns and create unique patterns for your MacPaint work.

If you've tried moving the pointer around the screen, you've noticed that it has two shapes, depending on its screen location. Outside of the MacPaint work window, the pointer is the regular arrow. Inside the window, the arrow changes into a small bullet or dot. This is the default paintbrush setting that MacPaint uses. You will learn in a moment how to change not only the paintbrush size, but also the function of the mouse pointer itself.

Touring the Menus

The use of the menus is integrated into the MacPaint application routines, so it will help to have an idea of what each menu does before you actually need to use one. The Apple menu at the top left corner of the screen contains exactly the same desk accessories you found earlier. The only new option, About MacPaint, lists the program version and the author's name. If you want to look at it, go ahead. Close it by hitting <Return> or <Enter>. As described before, the desktop accessories are available to you any time. In MacPaint, if you need the Calculator or you have to jot a message on the Note Pad, these accessories are only a click away. And you have full access to the Scrapbook, which you will use often to copy items into and out of MacPaint.

The File menu performs the same role as the File menu on the main desktop, with the addition of several new commands. The first command, New, is for opening a fresh, untitled document. It is identical to the document MacPaint automatically created when you first opened the application. Open, the second new command in the File menu, is for opening a stored document saved on a disk. The Open dialog box will display a directory of all MacPaint files (and only MacPaint files). You can scroll through these till you find the one you need, select it, and then click the Open button in the box to open the document. Your document will be loaded into MacPaint, ready for you to edit any way you like. If you're using a second disk drive or a data disk to store your documents, the Open box lets you look at the second disk's catalog by using the Eject or Drive buttons.

The Close command has the same result as clicking the close box on the upper left corner of the MacPaint window. Since you are working in an application, if you try to close a document that you have changed in some way, you will be asked if you want to save your changes before you close. If you don't, click the No button and the current window will vanish. If you do, the document will be saved to the disk before it is closed. When you close a document, the MacPaint window vanishes, leaving you with the tool palette and pattern palette on the screen. Go to the File menu if you want to open a new file (use New) or open an existing file (use Open).

MacPaint offers two options for saving your work. Save simply saves the current document with the same name that appears in the title bar. If, however, you are saving a new document for the first time, you will be prompted to name it. Afterward, Save simply writes over the old document with the same name, allowing you to update your work.

Save As is the second save option. It lets you rename the current MacPaint document so you can store several versions of the same thing. If you were drafting a set of floor plans with MacPaint, you might want to save every variation you design. Save As lets you save each new idea as a separate file. You can name them Plan 1, Plan 2, Plan 3, etc., to help you keep track of their development.

The Revert command lets you backup to the last version of the open MacPaint document saved on the disk. Revert lets you cancel all changes you have made to a document since the last save, and reloads the saved version into the MacPaint document•window. If you are using the initial release of MacPaint, version 1.0, Print sends the current document to the printer. In version 1.3 of MacPaint the Print command has been renamed Print Draft, and a new command, Print Final, has been added. Print Draft quickly produces an attractive printout. Print Final, on the other hand, takes more time as it makes two passes over the entire page and completely fills in and darkens each dot. No matter which print option you choose, when you print, a representation of the entire printed page is shown on the screen. Print Catalog sends a directory listing of all MacPaint documents on the current disk to the printer. The output consists of small pictures of the MacPaint documents lined up on the page. Quit, the last command in the File menu, is used to exit the MacPaint program entirely, sending you back to the Macintosh desktop. Quit will ask you if you want to save any changes you've made to the current document before you leave the program. This prevents you from losing an unsaved piece of work.

Editing in MacPaint

The Edit menu in MacPaint gives you five commands that you've already used: Undo, Cut, Copy, Paste, and Clear. Undo lets you abort a change you've made to your MacPaint document. Cut, Copy, Paste, and Clear work the same way as their namesakes on the desktop. However, selecting is different in MacPaint and will be introduced later in this section. Notice, too, that you cannot view the Clipboard from inside MacPaint. You have to rely on your memory to remember what you put there.

At the bottom of the Edit menu are six (five in version 1.0 of MacPaint) commands that allow you to manipulate the selected item. These commands will be introduced along with selecting in MacPaint.

Four New Menus

MacPaint features four new menus that don't appear on the opening desktop. Goodies, Font, FontSize, and Style are unique to MacPaint. The last three let you customize your text with nine different typefaces, selected from the Font menu, several different point sizes, selected through FontSize, and various styles like boldface, underline, and italics, selected from the Style menu. When you work with text on the Macintosh, you actually have a miniature typesetting machine at your disposal. As an example of the Macintosh's design capabilities, look at your *MacPaint* reference manual. It was designed with MacPaint.

Goodies

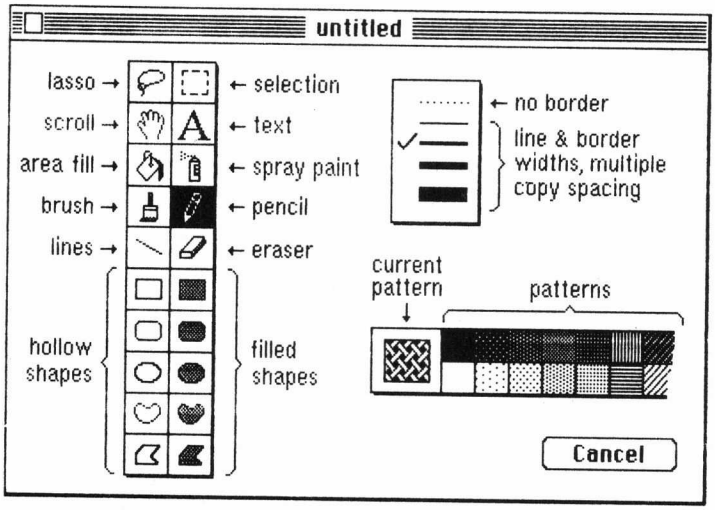
The Goodies menu features eight commands that let you do a variety of special things on a MacPaint document and also give you two help-screens full of information.

Clicking Grid checks it off on the Goodies pull-down menu, letting you know it's engaged. Grid maps an invisible grid, like graph paper, onto the MacPaint window, thereby letting you position objects or text precisely in relation to one another. Clicking Grid while it's checked cancels it.

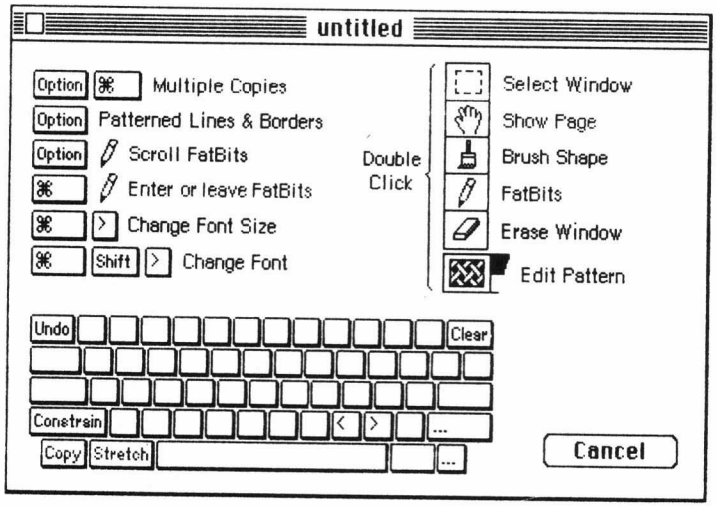
FatBits is a very unique command enabling you to work on a pixel-by-pixel basis with your document. (Pixel stands for picture element, and is the smallest unit that can be drawn on the screen. Everything on the Macintosh screen is composed of varying amounts of black and white pixels.) This lets you do incredibly detailed drawing. Edit Pattern actually allows you to create your own pattern for use in MacPaint. If you customize a pattern, it is automatically stored with the particular MacPaint document, putting it at your disposal every time you open the document. Show Page, also in the Goodies menu, displays a representation of an entire 8″ x 10″ page on the screen, as well as a small dotted rectangle that covers the area on the page you are using. You can move this window around the page and return to the regular MacPaint window to work on your new area. Since the MacPaint window only displays a third of a printed page, you must use Show Page to draw on an entire 8" x 10" surface.

The two Brush options in the Goodies menu let you select one of thirty-two brush shapes and use a *mirror* to paint identical lines on the screen.

The Introduction and Short Cuts options are two help-screens that give an overview of the MacPaint tools and shortcuts.



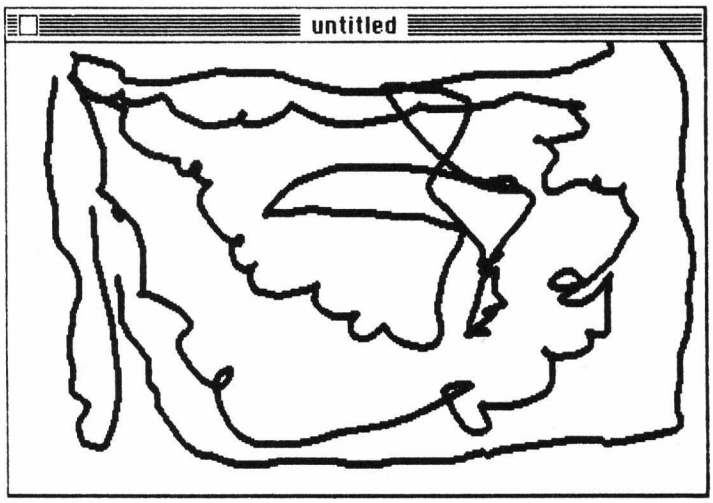
The Introduction help-screen from the Goodies menu.



The Shortcuts help screen from the Goodies menu.

Painting on the Screen

If you haven't reset anything since you first opened MacPaint, you should have the paintbrush icon selected in the tool palette. Move the pointer onto the window, where you will see a small black dot on the window's white background. Move the pointer to a spot on the window and press the mouse button. Continue to hold the mouse button down while you move around the screen. You're already drawing on your Macintosh.



Paint in the window by dragging the pointer around with the mouse.

Experiment by lifting your finger from the mouse button, then move the paintbrush to another spot on the screen, and paint by dragging around the window. When you've filled the screen with doodles, the most important device in the tool palette is the eraser. It's located just underneath the pencil icon that is to the right of the selected paintbrush. Click once on the eraser to engage it and move the pointer into the window, where it becomes a large white block. Now move to any area on the screen and start erasing by dragging. If you want to stop erasing and move to another position in the window, lift the mouse button and position the eraser block where you want it, then start erasing again.

If you've filled the screen completely with chicken scratchings and don't want to rub them all out, move to the eraser icon and double-click. This is a shortcut for erasing the entire viewing window at once.

I Didn't Want to Erase That!

When you work with the eraser, it's tempting to double-click whenever you are unhappy with the progress of your work in the MacPaint window. At some point you're bound to be a little overzealous and wipe out something accidentally. Losing your work can be traumatic, especially if you haven't saved a version to a disk. Fortunately, MacPaint makes provisions for you to recover your work if you accidentally delete it, provided you haven't started another action by clicking somewhere else.

Undo, in the Edit menu, works like Undo on the desktop. It cancels your last action. If you inadvertently erase an important picture or stray off course during some detailed cleanup work, you can cancel your error and continue. You can Undo as often as you like. You can even undo Undo, which brings you right back to where you started.

If you happen to be adding text to a picture and need Undo, you can use the keystroke shortcut <Command-Z> to Undo so that your hands don't have to leave the keyboard for the mouse. You can also hit the key on the very top left of the computer, with the tilde (~) and accent grave (`). This key produces the exact same effect as Undo and is easier to use than <Command-Z>.

Getting a Grip on the Mouse

For some people, the only hurdle in using MacPaint is becoming comfortable using the mouse as the sole means of working on the screen. Needless to say, most art has not been created by rolling a plastic rodent around a desktop. For some people, the lack of precision that comes with using the mouse, as compared with using a real pencil or paintbrush, discourages them from accepting the mouse as a serious tool for design. But once you're familiar with the mouse, and the special features for it that you'll learn in this chapter, the mouse is no more remote or intimidating than any of a hundred draftsman's tools. It is, in fact, easier to learn to use. The program itself changes the functions of the mouse. You need not swap tools for different tasks. This feature alone lets you zero in on your work and spend less time deciding which is the right tool for a particular job. The right tool is always the same tool: the mouse.

Sketching with the Pencil

Though MacPaint defaults to the paintbrush, the easiest tool to learn to use first is the pencil. Unlike the paintbrush, which has thirty-two different shapes, the pencil draws with only one point, leaving a single pixel-wide line. Unlike any pencil you might have on your desk, the MacPaint pencil never needs sharpening.

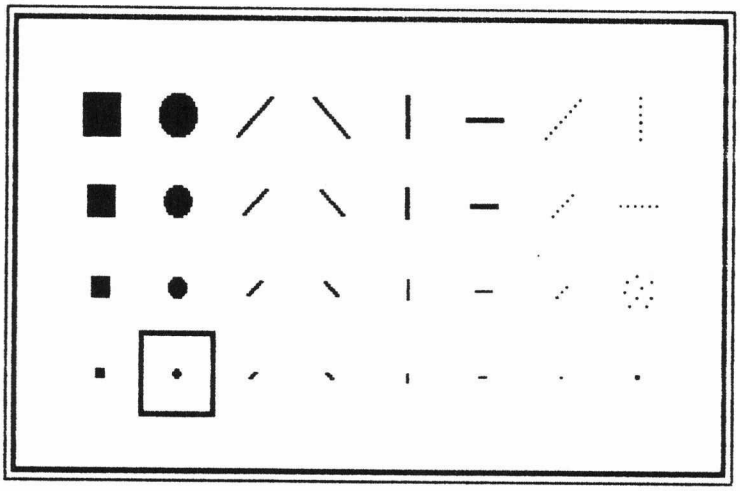
Click on the pencil icon in the tool palette and move the pointer to the drawing window. The pointer takes on the appearance of a pencil in the window. Draw just the way you did with the paintbrush. Find a spot to start and drag the pencil around the screen. Lift the button when you want to stop and reposition the pencil. Continue to draw around the screen until you're tired of your doodles. Double-click the eraser to make a clean slate.

Whether you use the pencil in the full-size drawing window or within the pixel-by-pixel environment of FatBits, it always draws a line that's a single pixel wide. You can also use the pencil as a cleanup tool in certain situations. The pencil draws in either black or white, depending on which color it is placed on. Moving the pencil to a white area causes the pencil to draw black dots. Moving the pencil to a black area causes the pencil to draw white dots. You can exploit this feature, especially in FatBits, by drawing with white to erase pixel-by-pixel. You'll find the regular block eraser is too large and clumsy for detailed cleanup work in FatBits.

Painting with the Brush

You've already encountered the paintbrush and have used it to fill a screen with doodles. MacPaint's paintbrush, while an admittedly perfect tool for doodling, is also one of MacPaint's most versatile devices. It gives you thirty-two different brush shapes and lets you paint in any of the thirty-eight patterns at the bottom of the screen. Later, you will design your own patterns. The familiar default paintbrush shape is the small dot that draws a four-pixel-wide line. Other brush shapes draw anywhere from sixteen-pixel-width lines to the smallest shape, which, like the pencil, draws single-pixel-wide lines. Unlike the pencil, even this smallest paintbrush shape paints in the currently selected pattern.

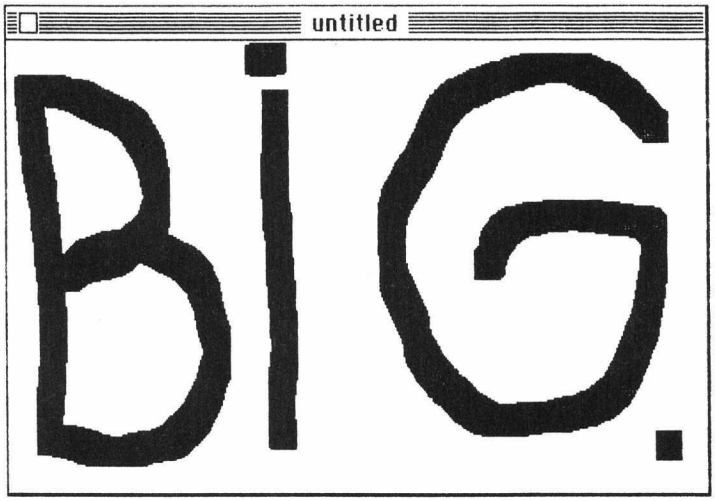
Changing the brush shape is simply a matter of going to the Goodies menu and choosing Brush Shape in the usual fashion. Do this now to examine the various shapes.



The thirty-two available brush shapes in MacPaint. Select a shape by clicking on it.

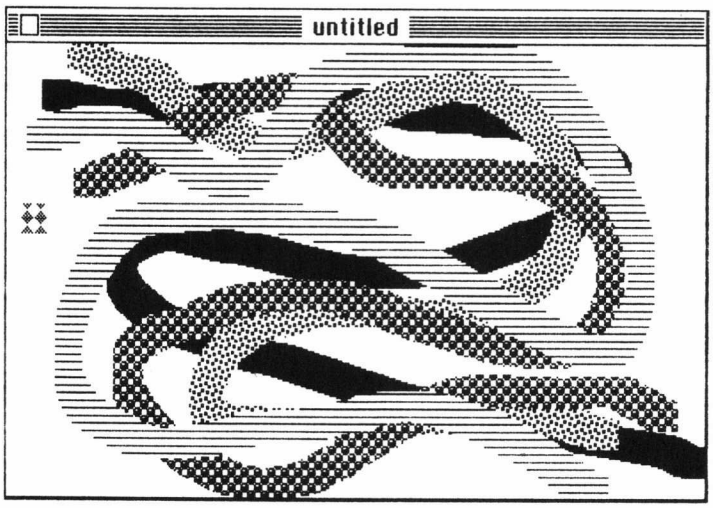
Once opened, you are presented with a four by eight array of shapes. This display is not a window but a special MacPaint version of a dialog box. MacPaint does use regular dialog boxes at different junctures in the program.

Within the Brush Shape box, a square encloses the current shape. Selecting a new brush is as easy as moving the arrow to the new shape and clicking the mouse button. For practice, try clicking the large square shape at the top left of the Brush Shape box. When MacPaint returns to the drawing window, your small paintbrush has been replaced by the large square. Try painting by dragging the brush around the screen. Notice the large swath that this new shape cuts.



Painting with the largest brush produces striking bold lines.

Select a new pattern from the palette at the bottom of the screen by moving the arrow to it and clicking. Choose an instantly identifiable pattern, such as the checkerboard at the bottom right of the palette, or the brick pattern near the middle of the top row. Go back to the window and paint with the new pattern over any other work you have on the screen to get an idea of how MacPaint lets you go back over your work. Notice there is no show-through in MacPaint. If you paint over any pattern, the underlying pattern is completely covered. The only way to get what's underneath your new painting back is to rescue it with Undo from the File menu or by hitting the top left key on the keyboard. You can also use <Command-Z> to the same end.



Use the paintbrush to paint with the currently selected pattern.

One final paintbrush option is Brush Mirrors, also in the Goodies menu. Brush Mirrors lets you select any of four lines you may use as mirrors. Click on the lines you want to use as mirrors and then click the OK button to return to the drawing window. When you paint with any brush shape using Brush Mirrors, mirror images of every stroke appear in the MacPaint drawing window. Turn off Brush Mirrors by selecting it and clicking the None button.

Using Shapes

One of the goals of MacPaint is to make even the chronically untalented artist able to create spectacular, professional-quality illustrations. As aids, ten predefined shapes, both hollow and filled with patterns, are available to you. How many times have you wished you could draw a perfect circle? Or ellipse? Or square? Even the simplest illustration looks nice framed in a small box. But boxes and circles are difficult to draw unless you're a skilled illustrator, fluent with several different tools. MacPaint makes these, and hundreds of other shapes, a simple matter of finding the correct predefined shape, then putting the mouse to work for a few seconds.

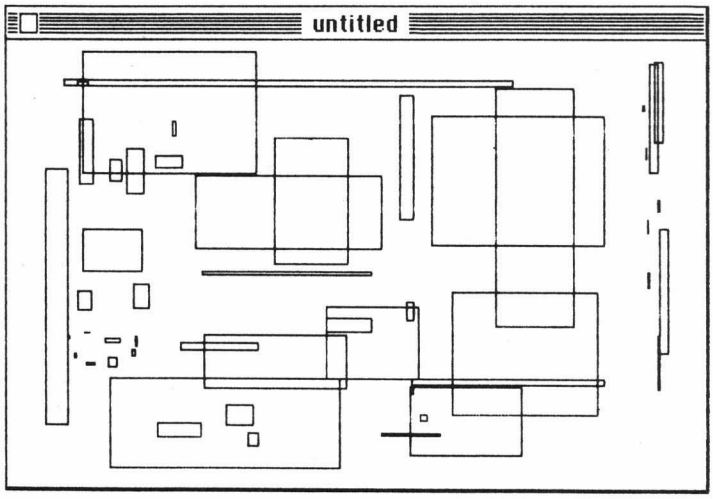
MacPaint's shapes are located at the bottom half of the tool palette. The hollow shapes on the left let you draw rectangles, squares, ellipses, circles, rounded rectangles, and two classes of freehand shapes: those with straight line edges and those without. The filled shapes to the right work in exactly the same manner, but they let you draw shapes

filled with the currently selected pattern from the pattern palette. Both hollow and filled shapes let you vary the border width of each shape you create.

To get an idea of how to use shapes, position the arrow over the hollow rectangle shape and click the mouse button to select it. Now move the pointer to the drawing window. Double-click the eraser to clean the window, if you have to. Once in the window, the arrow changes shape to a small cross hair. Without pressing the mouse button, move the cross hair around the screen for practice. Now here's the big moment. Find a spot on the screen you like and press the mouse button. Continue to hold it while you drag the cross hair around the screen. Look at that! The rectangle pivots from the spot where you placed the cross hair. The farther you move the pointer, the larger the rectangle becomes. Try folding the rectangle back onto itself by moving the pointer above and to the left of the pivot point. See how the shape folds over itself in an almost three-dimensional fashion.

As long as you drag across the screen without releasing the mouse button, you can continue to resize the rectangle. Note that the cross hair becomes the opposite corner from the pivot point, no matter where you drag your rectangle. To deposit the rectangle on the screen, find a suitable spot for the opposite corner using the cross hair as a guide. Release the mouse button. You've got a perfect rectangle.

Place a few more rectangles on the screen by making a pivot point, pressing and holding the mouse button, and dragging the cross hair over the screen. Drop the rectangle into place by releasing the mouse button. Place several rectangles over one another.



Perfect rectangles of any size are made using the hollow rectangle from the tool palette.

Notice, too, that the borders of every rectangle are single-pixel-wide black lines. The default borders for all shapes, either hollow or filled, are always black. You can change the borders for hollow shapes to the currently selected pattern by holding down the Option key while you place your shape. Filled shapes, however, always have black borders and are filled with the current pattern.

Changing Borders

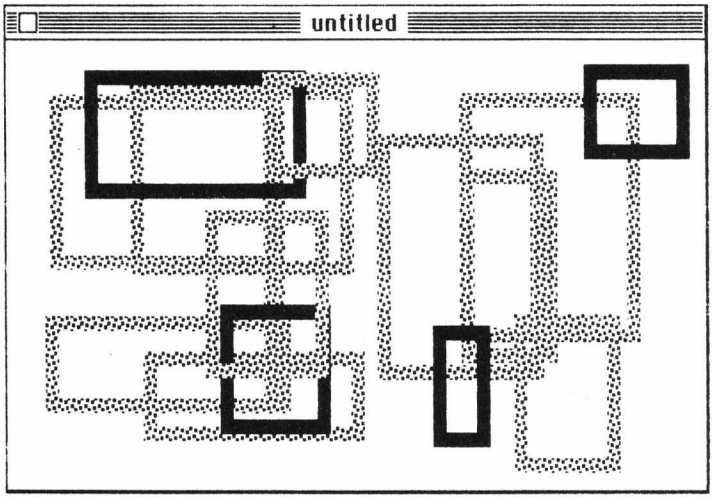
When you're tired of rectangles with thin edges, move the pointer to the border palette at the bottom left corner of your MacPaint screen. Unless you've already changed the border width, your border palette should have a check to the left of the second line from the top. Of the five widths, the dotted line at the top signifies no border, while the remaining four display the actual border widths you see on the screen. To select a new border width, move the mouse pointer to the new width and simply click the mouse button. The check appears next to the current selection. For now, choose the third width. Move back to the drawing window and observe that the once thin cross hair is now a much thicker cross.

Draw rectangles on the screen with the new border in the same manner as above, being careful to anchor one corner of the rectangle with the first press of the mouse button and then dragging until you've reached the desired size and placement. The borders of these new rectangles are exactly two pixels wide, or twice the width of the previous border. This doubling relationship also applies to the remaining two border widths. Each border is twice as wide as its predecessor. Thus, the fourth width is four pixels wide while the last one is eight pixels wide.

Changing Border Patterns

While you still have the hollow rectangle selected, change the border width to the fifth or last width in the border palette. Move back to the drawing window and position the large cross somewhere at the upper left of the window and drop a rectangle by dragging the mouse until the shape is covering about half the drawing window. The wide border

makes for a very bold, prominent box. Before placing another rectangle, move the pointer to the pattern palette and select the grainy pattern in the middle of the top row. Check to make sure you've selected it by looking at the current pattern box on the left of the pattern palette. If the grainy pattern doesn't appear there, then you've missed. Try again by moving the arrow right to the pattern and clicking the mouse button once. Move back to the drawing window. Just before pressing the mouse button, hold down the Option key on the keyboard with your free hand. Then press and hold the mouse button while you drag the rectangle across the drawing window. Your rectangle's border is no longer black, but has changed to the current pattern.



Hollow-shape borders are drawn in the current pattern by holding down the Option key while placing the shape.

If this procedure didn't work, you must have pressed the mouse button before you held down the Option key. Try again, making sure that you press (and hold) the Option key just before you drag with the mouse. Once you have pressed the Option key and pressed the mouse button, you can, if you wish, release the Option key and drag the pointer. The shape's borders will remain in the current pattern.

Even the single-pixel-width pattern in the border palette can be drawn in the current pattern. Of course, only a small segment of the entire pattern appears and almost all the patterns, the six or so dark ones, look pretty much the same. Only in the two-pixel-wide or larger borders do the patterns become recognizable.

Changing Shapes

If you're tired of looking at rectangles, select a new hollow shape by clicking on it with the mouse pointer. The shape just below the rectangle is a rounded rectangle that's useful as a highlight box in a report illustration. Its soft edges make it perfect for framing pictures or important blocks of text. Varying its border width lets you call attention to it or place it in the background.

Below the rounded rectangle is the ellipse shape. Clear off your screen by double-clicking the eraser, if necessary, and click on the ellipse shape in the tool palette to select it. Move the pointer to the drawing window and drop the pivot point by pressing down the mouse button. Drag the pointer around the screen, flipping and rotating the ellipse. When you're satisfied with its placement, release the mouse button. Change the border widths and continue to add ellipses to the screen. Try orienting ellipses in various ways on the screen. Create vertical ellipses by dragging up or down from the pivot point. Horizontal ellipses require that you drag left or right of the pivot point. Dragging at a forty-five degree angle draws a circle

As you drag the ellipse back over its pivot point several times, pay attention to the quality of the ellipse in its various shapes and orientations. If you make the ellipse long and narrow, in either the vertical or horizontal position, it breaks up and frays at the ends. This is a function of the resolution of the Macintosh screen, and is not a problem with your computer or MacPaint. Though the Macintosh screen has very high resolution, it simply doesn't have enough pixels or dots to achieve the resolution required for completely smooth lines.

Freehand Shapes

MacPaint also gives you the option of drawing freehand shapes. Underneath the hollow ellipse is a sort of upside-down lima bean that lets you draw as if you were using the pencil or paintbrush. Click on this shape to activate it and move the pointer to the drawing window. Your cross hair size reminds you of the selected border's size. For the time being, choose the second border. Position the cross hair and drag it with the mouse. It's just like using the pencil or paintbrush with the addition of the border width.

The last hollow shape, the six-sided angular one, is unique. It lets you place a starting point, much like you placed a pivot point for the rectangle and ellipse. The difference is that you drop your pivot by clicking once on the mouse button. Then you are free to drag the line that's anchored to the pivot simply by moving the mouse pointer around. You need not even hold down the mouse button. When you pick the point to which you want the line to connect, click again, then drag the line from the new pivot you just marked. This continues as you make each vertex of the shape by clicking once. The shape is completed when the last line is connected to the original pivot. Use this hollow shape to create any number of fascinating polygons.

One peculiarity of the hollow polygon shape, which you can use as a shortcut in your work, gives you the option of not finishing the shape you're drawing by double-clicking at the spot you want the lines to end. Clear off the screen with a double-click on the eraser, and select the hollow polygon. Move the pointer to the drawing window and place a pivot point anywhere on the screen. Move the line around and click to fasten the second point to the drawing window. Instead of connecting the third line to the original point to make a closed three-sided figure, position the final line anywhere else on the screen and double-click the mouse button. Double-clicking terminates the shape in any stage of its progress, thereby creating an incomplete or open polygon.

If you use the polygon and the option of changing the border to the current pattern, you need only press the Option key until you click the mouse button to place the first pivot point. After that, all lines are in the current pattern and you don't have to continue to hold the Option key.

Filling Shapes and Saving a File

The brief tour of hollow shapes has already prepared you for this tour of filled shapes. The filled shapes work in exactly the same manner as the hollow shapes, with a few important exceptions. First, the default border pattern for filled shapes is black. Regardless of the current pattern, all borders are black. You can, as you might have guessed, defeat this restriction by holding down the Option key while you draw a filled shape. Just like hollow shapes, the border becomes the current pattern and you effectively draw a borderless shape, all in the selected pattern.

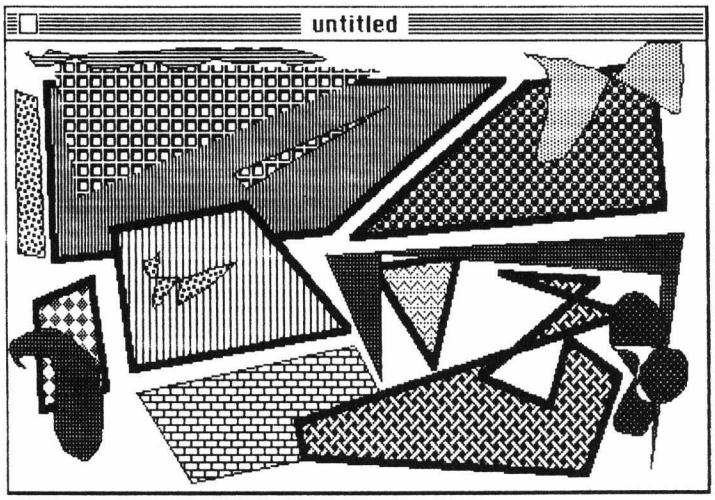
In fact, MacPaint gives you another option for drawing borderless shapes in the border palette itself. Click on the dotted line (the first width). This draws no border for filled shapes, though it draws a single-pixel-wide border for hollow shapes. With two ways to achieve the same end, you might be wondering which is more practical to use.

Clicking on the dotted line in the border palette is obviously the formal way to draw borderless shapes. Unfortunately, if you are working with several different kinds of filled shapes in a single MacPaint document, going back and forth to the border palette quickly becomes a nuisance. Therefore it's much simpler to employ the Option key as a shortcut.

Another key difference between hollow and filled shapes has to do with the two freehand shapes. The rounded, freeform shape that you used in the hollow version requires that you complete or connect borders in the filled version. This makes sense. After all, if MacPaint is going to fill a shape with a pattern, it needs to know the boundaries of that shape. Thus, MacPaint makes you close the freehand shape by connecting the final line to the original point you placed on the drawing window. If you fail to connect a border, MacPaint will finish the shape for you.

To get a firsthand glimpse of how this works, select the rounded, freeform filled shape from the bottom right of the tool palette. Next, select a prominent pattern from the palette. The bricks from the top row will do just fine. Now move the cross onto the drawing window and drag the cross around the screen by holding down the mouse button. Be aware that only the completely enclosed parts of your drawing will be filled with the pattern. Instead of closing the shape you've just created by bringing the last line to meet the original point, just let go of the mouse button. Instantly, MacPaint makes a beeline for the original point and fills the pattern with the brick shape.

The last freehand shape also works in a similar fashion. Select the filled polygon and clean off your drawing window if it's cluttered with experiments. Select a new pattern from the palette. The checkerboard at the bottom right-hand corner is a good one. Now move onto the drawing window and click the mouse button to place the first vertex of the new shape. Move the mouse around and place two or three more vertices, being careful not to double-click, around the window. When you're finished, don't connect the last line to the original point. Instead, double-click the mouse button and watch the last line spring into place while the shape fills with the checkerboard pattern.



Filled freehand shapes.

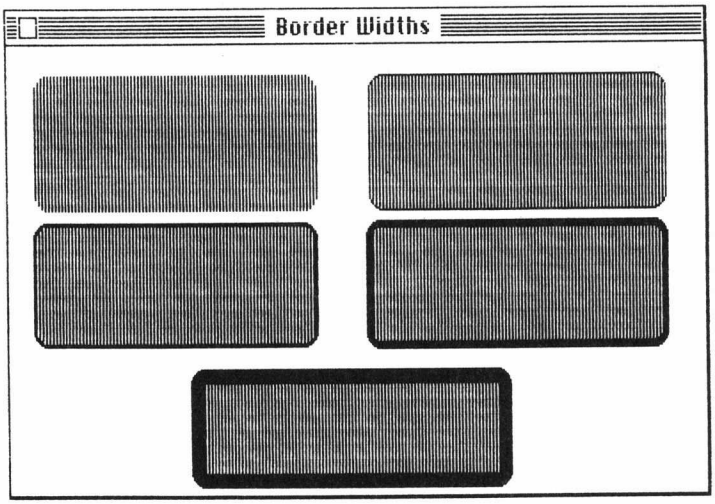
Regular Filled Shapes

Having looked at the two nonconformist shapes in the tool palette, you can look briefly at the three filled shapes for the rectangle, rounded rectangle, and ellipse. All three behave exactly as their hollow cousins. Each of these shapes is already complete, so that as you stretch the shape across the window, the filled pattern moves with the entire shape. Select the filled rectangle from the tool palette and then choose the slate-gray pattern that's the same as the Macintosh desktop. Pick the second border width. Move onto the drawing screen and drag the rectangle around. Fold it back over itself as you did the hollow shapes. No matter where you go, the shape and its pattern follow. Lay a few rectangles on top of one another and notice their borders define each separate shape, making it possible to distinguish every rectangle. Now choose another pattern from the pattern palette. Pick one of the lighter patterns, such as the tiles. Go back to the drawing window and lay a few more rectangles over the desktop-shaped ones. Again, placing new filled shapes over other filled shapes completely covers the old pattern. You cannot see through the new shapes. Lighter patterns never expose the patterns they cover.

Both the filled rounded rectangle and the ellipse work in the same fashion as the filled rectangle. You choose your pattern from the palette, select the appropriate border, and then begin laying perfectly formed shapes onto the MacPaint drawing window. Remember, borders may be defeated temporarily by holding down the Option key while you position your filled shape. Filling up the MacPaint drawing window is certainly exciting, but once you've painted your masterpiece in MacPaint, it isn't worth anything if all you can do is stare at it on the Macintosh screen. You have to be able to manipulate it, stretch it, shrink it, copy it, and move it around the Macintosh so that it's available to you in a variety of different settings. Macintosh and its applications, like MacPaint and MacWrite, make such manipulations simple. Saving your work for another day is no more taxing than opening a document from the desktop. If you've followed every instruction over the last few pages, your drawing window is probably full of ellipses, rectangles, and the like, all with different patterns and borders. Unless you have special fondness for these shapes, double-click the eraser to send them to the electronic void.

As a brief exercise in using the filled shapes, select the rounded rectangle and click on a pattern, such as the desktop gray. Pick the no-border option from the border palette and move the pointer onto the screen. Go to the upper left and drop a small, one-inch by two-inch, rounded rectangle on the screen. Release the mouse button to place it. If you don't like the position, you always have Undo from the File menu or its two keystroke shortcuts, <Command-Z> or <`>, to give you another chance. Once you've placed that shape, choose the second border option and move the pointer to the right of the first shape. Drop a similarly sized shape next to your first one. Notice the difference between the borderless rounded rectangle and the single-line border on the new rounded rectangle.

Repeat this operation three more times, choosing the next widest border from the border palette each time. You're done when you have five rounded rectangles in the window.



Border Widths.

To save this document you'll go through two steps. First, since you haven't saved anything yet during this chapter, you must name your document. Second, you have the option of saving your work on a separate disk. This is where you'll put your data disk to use.

Unless you've already saved something in MacPaint, the title bar of the drawing window should read "Untitled." Move the pointer to the File menu and hold down the mouse button. Drag through the menu until you reach Save. Choose it by releasing the mouse button when it's selected.

After the disk drive hums for a few seconds, you are presented with a dialog box asking you to name the document by typing through the keyboard. Once named, the Save button, which is dimmed, will become bold, indicating that it's a valid option you can execute. For now, simply name the document by typing Border Widths. Don't press <Return> or <Enter> or click the mouse button. The text in the name space can be edited with the Backspace key or by selecting with the mouse and then using the Backspace key.

Now that the document is named, you have two choices. You can save Border Widths to the Write-Paint disk by clicking the Save button in the dialog box. You can also save it to Write-Paint by pressing <Return> or <Enter>. But I told you in the second chapter there's an option you have within every application to save documents to other disks that are not currently in the machine. Therefore, you made data disks to hold only your work documents. Now's the time to pull Work Disk 1 out of hiding.

Move the arrow to the right side of the Save box. Position the arrow over the Eject button and click once. After the disk drive hums, the Macintosh will eject the disk. Take the Write-Paint disk out of the computer and insert Work Disk 1. As soon as the Macintosh recognizes this disk, it puts Work Disk 1 in the dialog box above the Eject button and makes Save and Eject viable commands again. Notice that your name for this MacPaint document, Border Widths, is not affected by ejecting disks. To save Border Widths, simply move the pointer to the Save button and click once. You can also hit either <Return> or <Enter>. For now, use the mouse and click Save.

Before you even have a chance to catch your breath, the Macintosh hits you with another dialog box that asks you to insert Write-Paint into the drive. The reason is that the computer needs the system files and the MacPaint application file to successfully transfer your work from the computer to Work Disk 1. Do as the computer asks and insert Write-Paint. After a brief whir, the computer asks for Work Disk 1. A few more spins and Border Widths has been copied successfully from the Macintosh to your data disk. Pay special attention to the title bar of the MacPaint window. The default name for the document, Untitled, has been replaced by your new name, Border Widths.

Since Border Widths is a small, relatively simple picture, it only takes two swaps to copy the file onto the data disk. Larger, more intricate MacPaint documents might require several swaps. Once Border Widths has been copied to Work Disk 1, the Macintosh doesn't release the data disk from the drive. If you think this is a little peculiar, you're right. After all, all the application and system files are on Write-Paint, and if MacPaint needs a special function, like a desktop accessory, it can't call it from the data disk. However, you can still go back to work in MacPaint as long as you use only those functions of the program that are already loaded into memory. If you call something like one of the help-screens from the Goodies menu, which doesn't reside in memory but stays on the disk, you will be prompted to insert the Write-Paint disk again. Once you insert the disk, Write-Paint stays in the computer.

If you'd feel more comfortable having the Write-Paint disk in the drive again, there is a simple method of ejecting the disk from the drive. Press and hold the Command key and the Shift key together while you strike <1>. This instantly causes the Macintosh to eject the disk in the internal drive. Replace the Write-Paint disk and start working again.

Note that the <Command-Shift-1> option will eject the disk from the internal drive at any point, no matter what application you are using. If you have the external disk drive, you can eject its disk at any time by pressing <Command-Shift-2>. If the Macintosh refuses to give up the disk after you execute one of these commands, don't argue with it. Continue your work or save and close what you're doing before trying again.

Two Disk Drive Option

If you have the Macintosh external disk drive attached to your Macintosh, you can save your application documents directly to a data disk without making a single disk swap. Just insert the data disk in the external drive and leave it there. When you choose Save or Save As from the File menu, simply click the Drive button to save to the disk in the external drive. All subsequent saves go to the external drive automatically.

Printing Your Work

If you have the Imagewriter printer, then you can not only admire the brilliance of MacPaint on your screen, you can enjoy it on the printed page. Making printed copies of your designs and illustrations is not only exciting but is also very useful. It gives you another channel through which you can distribute your work. It's also nice to hang your better pieces on the refrigerator or your office door.

Printing a MacPaint document is a simple task, but you have to print the document that's currently open in the MacPaint window. Though it is possible to print more than one MacPaint document at a time, this must be done from the desktop. Inside MacPaint, you must print document by document, closing and opening each document in turn. Printing Border Widths, which is currently open, entails going to the File menu and choosing Print Draft or Print Final (Print if you are using version 1.0 of MacPaint) by releasing the mouse button when the command is selected.

MacPaint automatically sends the current document to the printer. When the actual printing process begins, the MacPaint window changes to a representation of a full 8" x 10" printed page. Your document's contents are displayed on this "page" in the position they appear on the printout.

As previously mentioned, Print Draft, the equivalent of Print in the initial version of MacPaint, produces a complete printed representation of your MacPaint document. Print Final produces the same document but spends more time filling in the lines and dots by making two complete passes over the entire page. Use Print Draft to get a quick look at a work in progress. Use Print Final when you want a more finished-looking printout.

You can stop the printout by pressing the Command key and the period together. If you do stop the printout, don't be alarmed if the printer continues to work even after you've typed <Command-.>. The Imagewriter has a small buffer that's like a water reservoir. It holds the excess "water," in this case bytes of information, that the printer can't process all at once because it's a very slow mechanical device, especially when compared to the rate at which the Macintosh sends it information. It's possible this buffer can be filled completely and your attempt to stop the printout will have no effect. If you absolutely must stop the printout because your paper is jammed or your ribbon is broken, turn off the power on the Imagewriter itself, using the large ON/OFF button on the printer's front panel. This won't hurt the printer and stops the printout.

Closing Down Borders

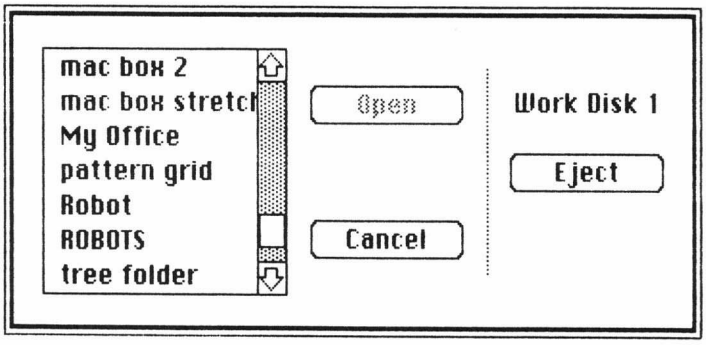
Border Widths has served you well, guiding you through the finer points of filled shapes, changing borders, saving to a data disk, and printing. But it's time to exit this document and move on to another aspect of MacPaint. Close Border Widths by clicking in the close box at the upper left corner of the MacPaint window. Close from the File menu has the exact same effect but takes longer. Since you're rapidly becoming a Macintosh expert, nothing less than shortcuts will do. If you've altered Border Widths in any way since you first saved it, you'll be prompted to save these changes before closing the document. Click the No button in the dialog box. You don't want to save anything new at this point. When Border Widths closes, the MacPaint window vanishes and leaves the familiar tool palette and pattern palette on the screen. Now is a good time to scan the menus at the top of the screen.

You have only a few File menu commands available to you, absolutely no Edit commands, most of the Goodies commands (except those that require the MacPaint window), and all your Font, FontSize, and Style commands. Every desk accessory in the Apple menu is also available. The most important command at this point is New in the File menu. We're going to use it to open a new, untitled document, exactly like the one that opened with MacPaint.

Opening Saved Documents

Once you have saved a document to a disk, it can be reopened at any time in one of two ways. If you're on the desktop, simply double-click on the document icon to open the application along with the document. From inside an application like MacPaint or MacWrite, select the Open command from the File menu. This presents a box listing all documents of the particular application and an Eject and Drive button for switching between disks in either the internal or external drive.

Since you have already saved Border Widths and closed its window, select the Open command from the File menu.



The MacPaint Open box for selecting documents to open. Click the Eject button to insert another disk. With two disk drives, click the Drive button to scan the documents on a data disk. Select a document by clicking on its name.

The Open box lists all MacPaint documents on the disk that has its name displayed above the Eject and Drive buttons. You should only see Border Widths listed unless you have saved other MacPaint documents to the disk. If there are more than seven documents on a disk, you may scroll through the list of document names using the scroll arrows, scroll box, and scroll bar. If you wish to look at the MacPaint documents on another disk, click either the Drive or Eject buttons. Remember that the Open box lists *all* the application's documents, regardless of whether they are placed in folders or folder trees.

To open a document from the Open box, select the document name and click on the Open button. You may also double-click on the document name to open the document. Open Border Widths once again by double-clicking on its name. After the disk drive spins for a moment, the Border Widths document is displayed in the MacPaint drawing window. You may now change the picture in any way you like and save it to the name Border Widths, using Save, or to another name using Save As. When you have finished looking at border widths, close it by clicking in its close box.

Starting from Scratch

Go to the File menu and execute New by selecting it with the pointer and then releasing the mouse button. A fresh, untitled window appears on the MacPaint screen. This is how you always open a new document for your work. Notice that, unlike the untitled document that opens with MacPaint from the desktop, this untitled document, created with New, doesn't automatically default to the paintbrush, single-pixel-width borders, and the black pattern. Whatever changes you make to the pattern palette, border palette, and tool palette appear with the new untitled document. Don't be surprised when you blindly start painting with the paintbrush on your new document only to find ellipses or rectangles stubbornly stretching across the screen.

More Tools of the Trade

So far, you're familiar with MacPaint's paintbrush, pencil, eraser, and its ten hollow and filled shapes. There are still seven tools in the tool palette you haven't used. This section will introduce five of the remaining seven. The last two, the lasso and the selection rectangle (also called the marquee), will be introduced in a later section devoted to editing pictures.

Line Up

Though you can make straight lines using the pencil and paintbrush if you have a steady hand and are willing to go back and clean up any rough spots, MacPaint has a built-in feature that lets you draw straight lines from any point in the MacPaint drawing window. This is especially handy when you need a straight line and don't want to risk drawing one freehand. After all, if MacPaint gives you a tool to do the job, why use something else?

The straight line tool, also called the ray, is pictured as a downward slanting line directly underneath the paintbrush icon. Clean up your screen by double-clicking the eraser. Make sure that the second border, one pixel wide, is current. Select the ray by moving the pointer to the line icon and clicking once, then move the pointer to the drawing window. The familiar cross hair that appeared when you worked with shapes also appears when working with the ray. In fact, all the techniques you employed with shapes, changing borders and drawing lines in the current pattern apply to manipulating the ray.

To make a straight line with the ray, position the cross hair near the center of the screen and hold down the mouse button. Drag the cross hair over the drawing window. The spot at which you pressed the mouse button is now the pivot or anchor spot from which your line emanates. Continue to hold the mouse button down as you slide the ray over the screen. This process is similar to using the polygon shape in that you anchor a point and then draw from it. Fold the line back over itself a few times and then move the cross hair to the vicinity of the pivot. This gives the illusion of having the ray point out at you from the Macintosh screen.

Dropping Straight Lines

After sliding the ray over the screen, place it in the window by releasing the mouse button. The location of the cross hair when you let go of the button marks the end of the line. Place a few more lines at various angles. One of the nicest features of the ray is that you can make lines at any angle over a full three-hundred-sixty degrees.

The quality of the lines you make with the ray is generally quite good. Unlike the ellipse, which broke up when you stretched it, straight lines are usually quite clean. However, if you need exceptionally smooth lines, you have to take special care when you drag the cross hair across the screen. To illustrate, clean off the drawing window by double-clicking the eraser. Now move the cross hair to the middle left of the screen. Hold down the mouse button and drag the line straight across the screen, making it horizontal. Because MacPaint is very sensitive to the movement of the mouse, each little turn and twist of the mouse, even just pivoting it on its rubber ball, affects the line on the screen.

As you drag the cross hair slightly above or below true horizontal, the ray breaks up into small blocks of pixels. Again, this is a function of the screen resolution. You can make a perfectly straight horizontal line if you watch it carefully before you release the mouse button. The same holds true for vertical lines. Lines slightly to the left or right of the actual perpendicular break into small blocks of pixels.

If you make lines that deviate from horizontal or vertical, you can expect the lines to be composed of several small blocks of pixels. As the line approaches a forty-five degree angle, the size of these blocks continually decreases. As a forty-five degree line, the pixels are arranged one by one, attached corner to corner, forming a staircase pattern.

Using Rays with Shape Commands

As mentioned above, straight lines made with the ray also let you use the same border palette and pattern options that you used with shapes. To make wider lines, simply go to the border palette and click the line width you want. The same relationships hold as before: the second line makes single-pixel-wide lines, etc. The dotted line, used with the filled shapes to eliminate borders, has the same effect as picking the second line.

Choose the largest line width from the palette and bring the pointer onto the drawing screen. Place a pivot point for this line by clicking somewhere on the screen. The large cross indicates a very fat line. To draw this fat line, drag the cross around the screen and release the mouse button. This line width makes for very striking, bold lines. Try making this large line perfectly straight in both the vertical and horizontal directions. Like the small line you started with, this line breaks up into small blocks of pixels. Surprisingly, this breakup is less noticeable with the large line.

Pattern Lines

The last option you can employ with the ray is drawing lines in the current pattern. Again, this procedure operates in the same way it did when you worked with shapes. Pick a pattern from the pattern palette at the bottom of the screen. Choose one you haven't looked at yet, such as one of the tile patterns on the right-hand side of the palette. Make sure the line width is still large and the straight line icon is selected in the tool palette. Move the cross to the drawing window and before pressing the mouse button, hold down <Option>. Then drag the cross around the window. Your new line is in the current pattern. Notice that the breakup problem almost disappears when you draw in any pattern other than black. Manipulate the lines exactly as before by folding them over their pivots and trying them in a variety of positions.

Painting Without a Brush

If your screen is filled with straight lines, emanating from a variety of places, now is the time to clear the slate with a double-click on the eraser. MacPaint lets you use the patterns in the pattern palette in yet another way, by using two tools from the tool palette: the paint can and the spray can.

Both of these utensils let you fill large areas of a MacPaint document with any pattern of your choice in one of two fashions. The paint can fills the area into which you pour the paint, i.e., the pattern, completely. Spraying with the spray can actually lets you shade in the current pattern, making very striking effects.

Pouring Paint

Filling areas with patterns requires no more than "spilling" the desired pattern into an entire window or some outlined shape that's separated from the rest of the window with completely connected lines. It's very important to understand just how the paint can works. Though you always have Undo a step away, it can be frustrating if the paint can

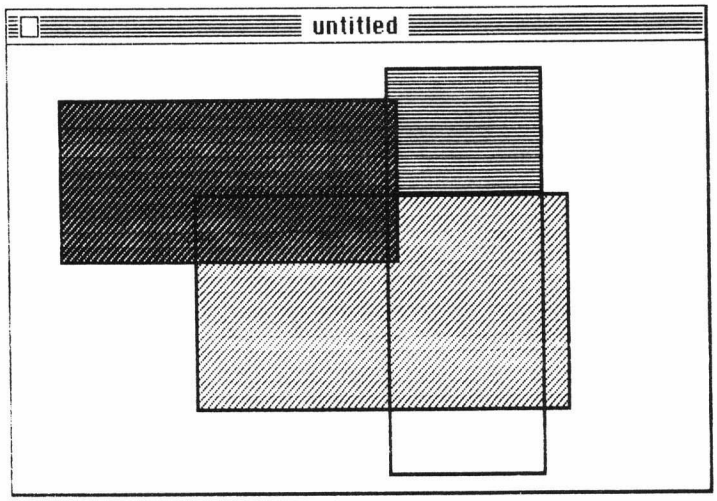
continually seems to defy your best direction. Paint is poured from the can by the very tip of paint stream on the icon. Any area that is sealed off from the rest of the window, such as a square or circle, can be filled easily, no matter what its size, by placing the paint can's tip into the area and clicking the mouse button.

If the area you attempt to fill is not closed off, and by closed off I mean completely surrounded by at least one width of touching pixels, the paint you spill will "leak" through and fill other areas, or the entire window if there are no other completely unbounded areas.

To get some practice with the paint can, go back to the tool palette and select the hollow rectangle. Make sure the border for the shape is taken from the first or second line in the palette. Move the pointer onto the screen and draw a rectangle that's at least two inches across. Go back to the tool palette and select the paint can icon. Next select a new pattern. One of the darker ones from the top row of the palette will do nicely. Now position the paint can anywhere inside the rectangle and click the mouse button. Instantly, the rectangle becomes filled with the pattern you selected.

Place another rectangle using the hollow rectangle. This time, make sure that part of it covers the first rectangle and that part covers the white screen. Click on the paint can again and place the tip of the can inside the part of the new rectangle that isn't covering the filled one. Click the mouse button and watch the pattern fill the new rectangle. Pay careful attention to the fact that the pattern does not cover the first rectangle. That shape provides a boundary that stops the paint flow.

Stretch another rectangle across the others as shown in the illustration. Make sure that there are two separate ends that cover the white screen. Select the paint can again and place the tip inside one of the white areas. Click the button to fill the area. As you guessed, only the white area in which you clicked was filled. The other white area remained unchanged. To fill that area, move the paint can to it and click.



Patterns poured with the paint can fill the smallest area bound by touching pixels.

Spilling Paint

Because the rectangle is formed with completely straight lines, there are no gaps between pixels for the paint to leak through. If you remember, the hollow ellipse is not formed from perfectly smooth lines but is made up of short, straight segments of pixels that approximate a rounded surface. You can use the hollow ellipse to show how paint spills through the cracks.

Clear your drawing window by double-clicking the eraser. Select the hollow ellipse from the tool palette, making sure that the borderline width is still the narrowest available. Position the cross hair on the screen and then drag an ellipse into place. Make it at least three or four inches across and at least an inch or two high. Inspect the edges of this ellipse closely. Along the entire surface, the edges are beveled in steplike patterns. There should be more than enough places for pouring paint to leak through. Go back to the tool palette, select the paint can, place the can within the ellipse and click the mouse button. Unless you accidentally made a leakproof ellipse, your entire screen should be filled with the current pattern.

Undo this mess. Go back to the tool palette and select the hollow ellipse. This time, anchor the shape near the top middle of the screen and drag the cross hair away at a forty-five degree angle. This turns the

ellipse into a circle (or nearly a circle). Make the circle about two or three inches across. Scan its edges and notice that they're smoother than the edges of the ellipse. Select the paint can from the tool palette and fill the circle by placing the can within the circle's boundaries and clicking. Unless you've created an imperfect circle, only the area within the circle should be filled with the pattern.

More intricate shapes demand very close attention when you are trying to fill parts of them using the paint can. As always, Undo gets you out of trouble, but finding leaks can be more problematic. When you get to some of the more advanced editing techniques, such as FatBits, which lets you work on a pixel-by-pixel basis, you can close off the leaks by filling in all the gaps. Until then, you can use the pencil and the small paintbrush shapes to plug them up.

Spray It, Don't Say It!

Every large city in the United States is blessed with a band of self-appointed artists-of-the-people. These streetwise Da Vincis use spray cans to paint their masterpieces on brick walls and subway cars. MacPaint lets you enjoy the same freedom, albeit in the sheltered domain of the Macintosh. If you suddenly feel the urge to pull out your spray can and get down to business, it's only a click away.

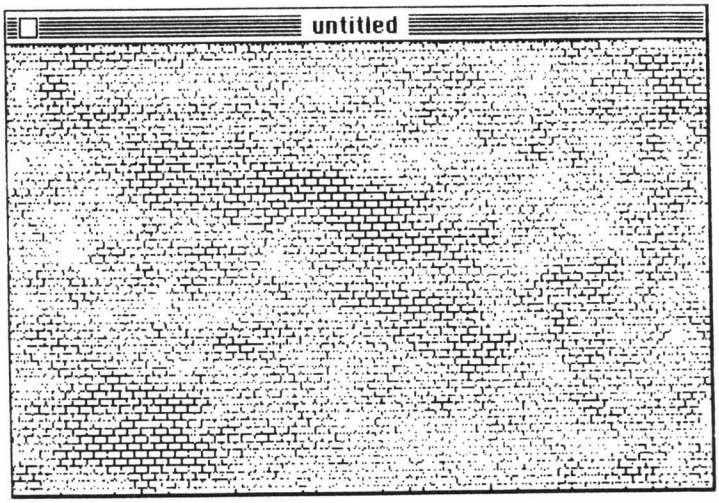
MacPaint's spray can is a very powerful tool that performs some of the most remarkable feats in all of MacPaint. Once you learn the basics of the spray can, you can highlight and personalize your work in a very unique way.

Like a real spray can, the MacPaint spray can spreads its pattern as a tight cluster of dots, which you control by holding down the mouse button and dragging across the window. As you drag the spray can cluster, the currently selected pattern is sprayed onto the window. What's really remarkable is that, like its real-life counterpart, the MacPaint spray can lets you shade by spraying back and forth over the same area in the drawing window. This technique lets you create startling effects by blending and highlighting with hints of various patterns.

Clean off your drawing window using the familiar method of double-clicking the eraser. Select the brick wall pattern from the top middle of the pattern palette, then move the pointer to the tool palette and click on the spray can icon that is to the right of the paint can you just finished using. Slide the arrow onto the drawing window and notice that the shape it takes is similar to the cluster pattern produced by a real spray can. Unlike some real spray painters, however, you cannot adjust the MacPaint spray pattern. This presents some minor problems when you're trying to fill in a small area carefully, but a little ingenuity and some MacPaint tools give neat solutions.

Position the spray cluster at the left of the drawing window and drag to the right of the screen with a slow, deliberate motion. This pass will paint about sixty percent of the current pattern (bricks) onto the window. Examine the sprayed pattern closely. Although you can make out the lines that demarcate each brick, notice that most of the sprayed pattern consists of individual dots. Another pass or two is required to spray in the pattern fully.

To do this, move the spray cluster back to the beginning of the path you have just finished and drag across the first spray line with the same deliberate motion. If your hand is steady and you managed to spray across the first swath, you see that the can did indeed fill in the pattern by completing over half the lines that make up the brick pattern. Make another pass in exactly the same fashion as the first two. Again, more of the pattern is filled in. It will take between five and seven passes over the same area to spray in the pattern completely.

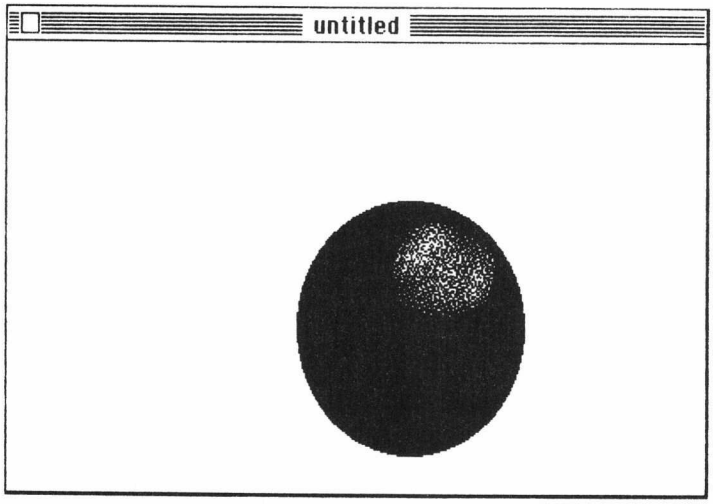


The spray can lets you shade and rub a pattern to any desired density.

Because it takes a few passes to fill in a pattern, you can create interesting highlights by spraying only once or twice over an area. Here's an example that creates the effect of light falling on an object. We all know that a black ball never appears completely monochromatic to our eyes. Light causes some parts of the ball to look gray, others silver. Depending on the angle of the light source, the ball can be made to look like a crescent or even three-dimensional.

Clear off your screen, then click on the filled ellipse shape in the tool palette and select the narrow border from the border palette. Also select solid black from the patterns. Move the cross hair onto the window and place a nearly round ball on the screen by dragging the cross hair at a forty-five degree angle to the plane of your table. Make the ball at least two inches across. This gives you plenty of area to work with. Go back to the tool palette and select the spray can, then select the white pattern from the pattern palette. Place the cluster of dots over the top right part of the ball and slowly drag in a circular motion, being careful not to stray too close to the edges of the black ball. After one or two passes, release the mouse button and inspect your work.

If you made one or two small circular passes at the top of the ball, you probably sprayed a fair amount of the white onto the ball. That's fine as long as you haven't made a completely solid white patch.



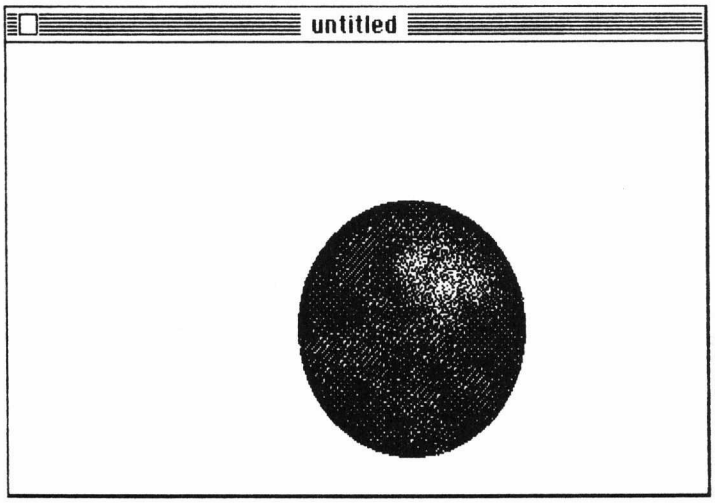
The first pass of the round ball. Notice the highlights are not too dense.

At this point the ball is beginning to look highlighted but needs more shading, especially around the white patch and the rest of the surface. Go to the pattern palette and select the black pattern that's peppered with white dots, directly to the right of the solid black pattern. Take the spray cluster back to the ball and place it just outside the white patch. Now make one pass over the rest of the ball's surface. This darker pattern, with its light flecks, gives the impression that light is falling on the entire ball.

If you've done something you don't like, Undo to the rescue. Hit <`> at the top left of the keyboard. If you think your ball is hopeless, clear the screen and start over.

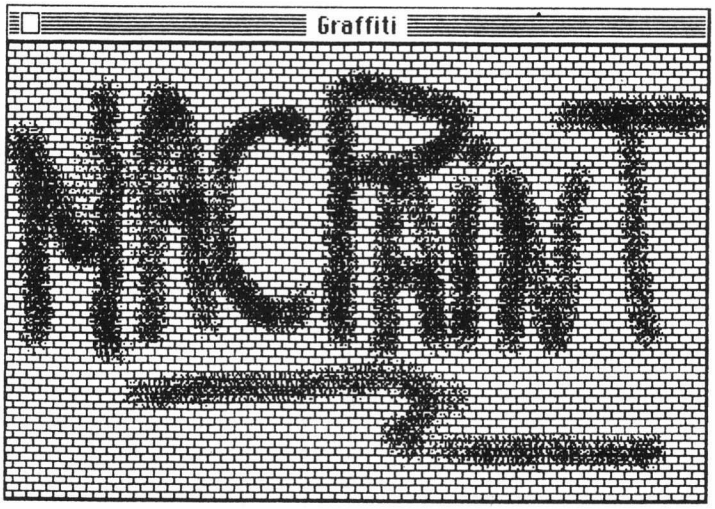
It only takes a minute or two. By now, the ball should look three-dimensional. You can refine the shading even more by mixing not only white and black patterns, but textures as well. So far, all shading has been done with white, or black with white flecks. In both cases, the distribution of the dots has been completely symmetrical, with patterns running vertically and horizontally. To get another shading effect, choose the black pattern that is striped with vertical white lines.

Go back to the ball and position the spray cluster just outside your original white circle. Be careful with this new pattern. Overspraying can ruin the entire shading effect. Drag *once* over the black area of the ball. See how this pattern, with its parallel lines, changes the entire look of the ball's surface? The texture defines the ball in a new way, making it look less two-dimensional by giving it some extension.



Mixing white pixels and patterns produces excellent shading effects.

If you've been careful, your ball should now look so real that it seems about to roll onto the floor. Of course, nothing comes without practice and MacPaint is no exception. If your ball doesn't quite look perfect, that's okay. As you use the spray can more and more, you will find new and better techniques suited for your own projects and style. In general, the spray can is the most versatile tool in MacPaint. From simple highlighting to spraying in beautiful backgrounds, the MacPaint spray can offers an unusual amount of flexibility. With what tool on any other computer could you make the following?



Macintosh graffiti.

Transparent Paint

Version 1.3 of MacPaint sports an interesting new feature not found on the initial release. It lets you paint over other patterns with the paint bucket, paintbrush, and spray can without destroying the underlying pattern or patterns. In order to use the transparent paint feature, you must press the Command key while you paint with any of the painting tools. This technique places the pixels or dots that comprise the new pattern between the pixels in the underlying one. Be forewarned, however, darker patterns tend to cover lighter patterns. Therefore, experiment with several different patterns to see which look the best

mixed together. When used with a little thought, MacPaint's transparent paint option lets you make striking watercolor effects which enhance any MacPaint document.

Move It Around

One of the few limitations of MacPaint is that the drawing window allows you to view only one third of an entire 8" x 10" document (the maximum size of a MacPaint printout). This is adequate until you need to peek around the corner to see what the rest of your creation looks like. Before you explore the Show Page capability of the Goodies menu, which displays the drawing window in relation to an entire 8" x 10" page, we'll look at another useful feature of the MacPaint tool palette—the hand, or grabber, which is located beside the A. The grabber makes it possible for you to move your picture around in the drawing window so that even if you can't view your work all at once, you can create it in pieces and fill an entire page if you want to.

If you've still got the highlighted ball on your screen, go to the tool palette and select the grabber by clicking on it once. Move the arrow into the drawing window, where it will change into a hand. Moving is accomplished by dragging the hand around the screen and then releasing the mouse button. Position the hand anywhere near the center of the window and press and hold the mouse button. Drag the ball across the screen. You can reposition it almost anywhere in the drawing window. Try sliding the ball off the screen completely. You'll find that you can't. You might even have trouble moving it to the edge of the screen in one direction. This is a function of the drawing window itself bumping the edges of the 8" x 10" document. When you use Show Page, you'll have a better idea of what this means.

When you release the mouse button, the disk drive will go to work for a few seconds. MacPaint documents, even simple ones like the spray-painted ball, occupy quite a bit of room in memory and on disk. When you reposition the picture in the drawing window, the Macintosh must

go through some internal repositioning of its own so you can view the area you want. Whenever this takes place, the pointer icon turns into the wristwatch, asking you to wait a minute. Once the wristwatch disappears, you're all set to work again.

Text in the Machine

No doubt you saw a demonstration of one of Macintosh's most touted features before you bought it, its nine different typefaces or fonts. The reason Macintosh can make such extensive text and style offerings is in the design of the machine itself. The Macintosh is a digital graphics computer. Like its big sister, Lisa, the Macintosh is always in a graphics mode. This means that no matter what you're doing with the computer, be it programming in Macintosh BASIC or reading through information windows on the desktop, the Macintosh screen is always controlled by individual bits within the computer's memory that turn on and off each distinct pixel on the screen. Because there are so many pixels, 175,104 to be exact, over 20K of the Macintosh's random access memory (RAM) is used to control the screen. At any time when using MacPaint or MacWrite, there are available to you seven different fonts (this number varies depending on the version of the disk you are using and whether or not you have customized the fonts with Font Mover), about nine sizes, and several style options, such as boldface and italics, giving you over two thousand combinations of font, size, and style. Most of what you learn in MacPaint about using the typeface options prepares you for using these same options in MacWrite. The faces themselves do not change from application to application, so once you know what 12 point Venice looks like in MacPaint, you don't have to guess what it looks like in MacWrite. Placing text in the MacPaint drawing window is a matter of selecting the text icon in the tool palette, denoted by the A right above the spray can, and moving the arrow onto the window. Since you're working with text, your pointer becomes the I-beam.

Select the A icon from the tool palette. Clean up your screen with a double-click on the eraser, if you have to. Move the I-beam onto the drawing window without pressing the mouse button. You choose the spot where you want the text to begin by placing the I-beam and then

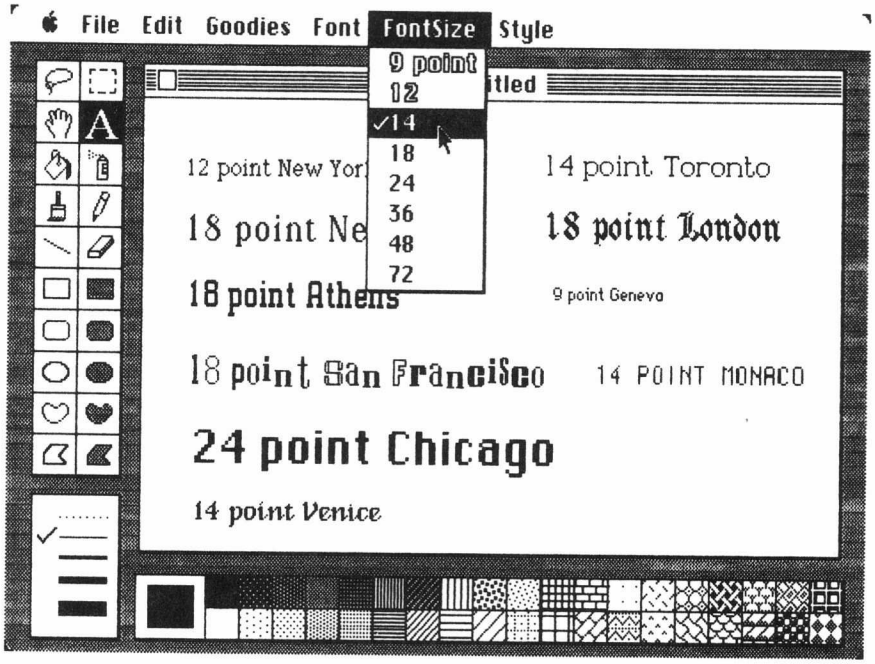
clicking once on the mouse button. For now, place the I-beam near the middle of the window and click. Move the I-beam away from the spot to look at the blinking vertical bar called the *insertion point*. This is simply another name for a regular computer cursor that lets you know where you are on the screen and where your typing begins. MacWrite works the same way. The insertion point marks your place in the document while the I- beam is your mouse-controlled editing pointer.

Start typing. Anything will do. Edit your mistakes with <Backspace> and stop typing before you hit the edge of the window. Anything you type off the window will not make it into your document. Also, don't hit <Return> when you're finished with your phrase. Let the insertion point blink at the end of the line.

Since this is your first typing session in MacPaint, the default text settings are 12 point Geneva plain. On the initial release of MacPaint, 12 point New York plain is the default setting. This size is slightly larger than the 10 point sizes in most typewriters and is very easy to read. To confirm that these are indeed your settings, move the pointer to the Font menu and press down the mouse button. The pull-down menu lists all the typefaces with a check by the currently selected one. Move the pointer next to the FontSize menu. Press and hold the mouse button. There are nine sizes, ranging from 9 to 72 point. The current size is checked. Note: There is no 10 point size in version 1.0 of MacPaint.

If you look again at the FontSize menu, you'll see that some of the point sizes are written in outlined style while some are in regular text. This is MacPaint's way of recommending the best sizes for a particular typeface. For New York, 10 to 24 points looks the best. You can choose 72 point if you wish, but because the Macintosh doesn't have an image for 72 point text, it looks rather clumsy, with pixels beveling the letters. When you change fonts in a few moments, you'll go back to the

FontSize menu to see which sizes are best for other faces. As you might have guessed, MacWrite makes the same recommendations in the same manner.



MacPaint and MacWrite recommend the best sizes for particular fonts by outlining the point size numbers.

The last text menu in MacPaint is the Style menu. Move the pointer to Style and hold down the mouse button. There are six styles listed with a check again beside the current one. The styles are listed with their keystroke shortcuts to the right. Like the keystrokes used in some of the desktop menus, these options utilize the Command key, with the cloverleaf pattern pressed in conjunction with the letter keys listed. (Apple has designed the keystrokes with mnemonics to help you remember what they do. <Command-P> produces plain text, <Command-I> produces italics, etc.) These keystrokes are also available in MacWrite and allow the experienced typist to keep his or her hands on the keyboard as much as possible, cutting down on reaching for the mouse.

Unlike the Font and FontSize menus, whose options can only be selected one at a time, Style menu options work in combinations. For example, you can have bold italic text or bold italic underlined text. You cannot have plain shadow or plain italic text. If you ever tire of sorting through the dizzying combinations, selecting Plain removes all the fancy stuff.

At the end of the Style menu are three options, separated by a dash, that control the direction in which the text you type will travel. The default is Align Left. This produces an insertion point that moves toward the right side of the window as you type, in the same way a typewriter moves toward the right side of a page. Align Middle inserts the text in the usual manner but also moves the text toward the left, while the insertion point slowly creeps to the right of the window. Align Right fixes the position of the insertion point and walks the text toward the left side of the window.

Each option comes in handy in different circumstances. Align Left is the most familiar and should be used when you just want to write something on the screen and it doesn't matter if the text and insertion point move to the right. Align Right, on the other hand, is perfect for situations where you want to label an object in the window but don't want to type over it. All you have to do is place the insertion point at the left edge of the object, choose Align Right, and start typing. Your label walks off toward the left edge of the window while your insertion point remains at the edge of your object. Align Middle is good for gradually filling an entire line of the screen with text. Remember that no matter which orientation option you choose, text that scrolls out of view of the drawing window is lost and cannot be retrieved by using the grabber or the Show Page feature.

Using the Text Menus

Changing fonts, sizes, and styles is quite simple and lets you view a variety of options before you make a final decision. As long as you don't click somewhere else on the window, the text you just typed can be corrected with the Backspace key and changed with the Font, FontSize, and Style menus. Once you're satisfied with the way your text looks, you can hit <Return> to place the insertion point directly under the first insertion point. Even after you use <Return>, all the text you type is still subject to the control of the three text menus. Once you click somewhere else to drop a new insertion point or to activate another tool, you lose the ability to change the text you typed in. Only the text that follows an insertion point and precedes another click can be changed with the text menus.

Look at the phrase you typed: 12 point Geneva plain. Now go to the FontSize menu and hold down the mouse button to view your choices. Slide the pointer to 18 and release the mouse button to select it. After a quick hum from the disk drive, your phrase is almost a half inch tall in the window. If your original phrase fits within the boundaries of the window but runs out of the window in the larger size, don't worry. The rest of your text is preserved. To convince yourself, go back to the FontSize menu and choose 12 again. You're right back where you started.

Leave the point size at 12 for the moment and go into the Style menu. Choose Bold by dragging to it and then releasing the mouse button. Again, the text on your screen changes immediately. Because the letters are bold, they are wider and take up more room than their plain cousins. Go back to the Style menu and choose Plain again, or if you like, skip the menu and press <Command-P> on your keyboard to achieve the same end.

Hit <Return> if your insertion point is still at the end of the line of text. Watch the insertion point jump down to the beginning of the next line. Type another phrase. Leave the insertion point at the end of this new line for now. Go to the Font menu and scan the different typefaces. One peculiar thing about the Font menu is that the various typefaces are all identified with 12 point plain Chicago text. 12 point Chicago is the Macintosh system font. All menus are written with it as are information windows and the comments you type into those windows. While this does increase readability, it doesn't tell you anything about what the actual fonts look like. Which one is cursive? Are there sans serif faces? You have to rely on your memory or the accompanying chart for quick reference.

A quick-reference chart of several Macintosh fonts.

Athens is a display font which looks best in:
18 point

New York is a serif font which looks best in:
9point, 10 point, 12 point, 14point, 18point, 24 point

Geneva is a sans-serif font which looks best in:
9 point, 10 point, 12 point, 14 point, 18 point, 24 point

Toronto is an expanded-serif font which looks best in:
9 point, 12 point, 14 point, 18 point, 24 point

Monaco is a monofont which looks best in:
9 point, 12 point

Chicago is the Macintosh system font which looks best in:
12 point

Venice is a cursive font which looks best in:
14 point

London is an Olde-English font which looks best in:
18 point

San Francisco is a bizarre font which looks best in: 18 point

Los Angeles is a script font which looks best in: 12 point, 24 point

Cairo is a picture font which looks best in: 18 point

The best way to review fonts is to place them in the window and look at them. If you are not using Geneva, select Geneva from the Font menu. The text on the screen changes to the Macintosh's Geneva font. Geneva is a sans serif font, that is, a font without serifs, the small lines that finish off the main stroke of a letter. As an example of serifs, contrast New York's capital I, which has small horizontal lines capping the letter at both ends, with Geneva's capital I, which is simply a straight line.

Choose the Toronto font from the Font menu and see how it looks on the screen. Toronto is an expanded serif font with wide letters. Pick Monaco next from the Font menu. Monaco is a monofont in which all letters are the same width. You can skip the Chicago font if you want. After all, nearly everything in the Macintosh system is written in it. Toronto is not provided with version 1.3 of MacPaint. You can refer to Appendix B for instructions on using the Font Mover application to move Toronto, or any other font, onto your Write-Paint disk.

After the Chicago font, the remaining fonts are specialty fonts, offering some very unique typeface alternatives. Venice is the Macintosh's cursive font. Cursive writing, if you've forgotten second and third-grade handwriting fundamentals, is composed of long, flowing strokes that connect the letters.

Choose Venice from the Font menu and watch the text change. All the letters are connected at their bases and each letter sports a little flourish. (I must qualify "connected" because the computer doesn't actually connect the letters the way you or I would were we to handwrite them. The Venice face approximates true cursives. It cannot properly connect the millions of combinations of letters you can type in. Nonetheless, Venice is a classy font.)

While you're still in the Venice font, take a peek in the FontSize menu to see what sizes the Macintosh recommends. Remember that any size from 9 point to 24 point looked good for New York. On the other hand, only the 14 point Venice looks good according to the computer. What's on your screen should be 12 point Venice. Though it's readable, it's too small to be comfortable to read for a long period of time. Switch the size by selecting 14 from the FontSize menu. This larger size of Venice makes it infinitely easier to read. The letters are well defined and are not crowded together. Now try selecting 18 from the FontSize menu.

Though only four points larger than the best size for Venice, stray pixels that are invisible at 14 point become all too visible in 18 point. Larger sizes exacerbate the problem by magnifying the pixels to the point where you can count the individual dots in each letter. Apparently, the Macintosh knows its stuff when it comes to typefaces. Its recommendations are worth your consideration.

The second specialty font, London, is really an Olde English font that produces letters similar to those used for newspaper headlines. Choose London from the Font menu. If you're still in 12 or 14 point size, London can be difficult to read. Refer to the FontSize menu for a recommendation and it will tell you 18 point. Change the size by selecting 18 from this menu. Instantly, London becomes readable. Small sizes of London are too cramped and large sizes become unattractively marbled by pixels.

Athens is a display face that looks nice as a headline or title. Like London, Athens works best in 18 point.

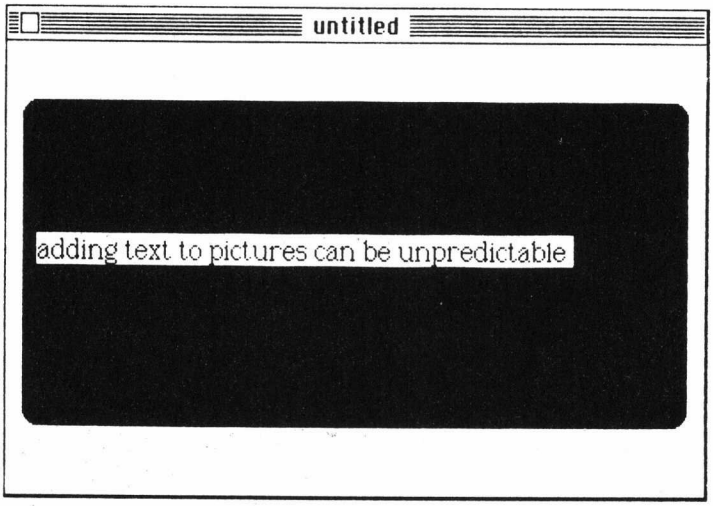
The last font, San Francisco, which is not provided with the newer version of MacPaint, is something of an oddity. Each letter in its alphabet belongs to a different typeface. To further confuse things, some letters are in different styles: bold, outline, italic. If you have it, choose San Francisco from the Font menu. Instantly, your phrases are turned into a mad collage of letters and styles that look as if they were typeset by a kidnapper. Of course, this is the point. The face was designed to look as if it were cut out, letter by letter, from old magazines and newspapers and then pasted onto a sheet of ratty stationery. If you ever need to emphasize something in an unusual way, San Francisco is the way to go. Like its more conventional specialty faces, Athens and London, San Francisco looks best in 18 point.

Text Quirks

Though experimenting with text is always fun, there are a few pitfalls you should be aware of. They tend to creep in at the most inopportune times, such as when you're labeling a beautiful invitation or identifying a crucial part of an illustration. The first pitfall to guard against has already been mentioned at the beginning of the last section. Once you click after entering text, you lose the option of changing it with the Font, FontSize, and Style menus. If you accidentally click and get stuck, the only way to fix your text is to erase it and start over again.

A more dramatic problem with text occurs when you want to type

over an existing object in the window. Clear the screen if you have to by double-clicking on the eraser. To illustrate, make sure the black pattern from the pattern palette is selected. Select the filled rounded rectangle from the tool palette and stretch a good-sized figure across the screen. Drop it on the window by releasing the mouse button. Now go back to the tool palette and select the A or text icon by clicking once on it. Position the I-beam pointer inside the black box sitting in your window. Now type. Surprise! Rather than typing white letters over the black background, adding text cuts out a white swath for the standard black letters to reside in. If you know this, you can work around it. If it's a surprise, it can be very frustrating.



When text is added over pictures, it cuts out a path through the pattern or background.

First of all, you cannot type white letters over dark backgrounds because there is no way to make white letters. Therefore, typing text over any dark background is out of the question unless the white path it cuts out is acceptable to you. If you want text to appear to blend over an existing pattern, you must choose a light background pattern and touch up your work with paint can and paintbrush.

Clear off your screen and select one of the lighter patterns from the pattern palette. The white and black pattern next to the completely white pattern will work well. Place another rounded rectangle filled with

this new pattern. Now select the text icon again and place the I-beam somewhere within the figure. Start typing. The same white path is plowed out by the insertion point for the letters.

Now go back to the tool palette and select the paint can. Leave the same pattern selected and place the tip of the pouring paint within the white band surrounding the letters. Don't touch the letters with the tip and don't place the tip within the closed portion of a letter (i.e., inside an "o"). Fill the area by clicking once on the mouse button. This fills the area surrounding the text but does not fill in the closed parts of the letters themselves. You can go back and place the tip of the paint can inside the hollow of the individual letters and fill them. For some patterns, like the one in this example, it isn't really necessary that you do this, but more elaborate or darker patterns might benefit from this additional touchup.

If you plan to type over darker areas, you might find yourself changing your plans or resolving to live with the white box around the text you add. Though you can touch up dark areas using the procedure outlined above, the results are always a compromise. Dark patterns absorb the letters, making them difficult to read. Rethinking your goals might be wise at this point. It's a situation in which MacPaint has reached its limitations.

MacPaint So Far

At a little past the halfway point of this MacPaint chapter, you already know enough of MacPaint to make some very startling and interesting designs and illustrations. If you've also been perusing the *MacPaint* manual that accompanies the program, then you're no doubt experimenting with various MacPaint options on your own. The instructions and guided tours that come bundled with the Macintosh are an excellent introduction and reference. They do not, however, lead you through the actual steps of working with MacPaint and MacWrite in any particular order.

One of the most common complaints about computer documentation is that it rarely presents all the necessary information in a logical order. A book like this supplements the references of the computer's manuals, but makes a greater attempt to meet the logical work habits and needs of most users. That's why you can jump back and forth between here and the Macintosh manuals and never miss a beat. In fact, you can put the new things you learn into the framework of this book, thus giving you perspective on the process of using the Macintosh.

Using the Scrapbook and the Clipboard

When you first turn on the Macintosh and insert a disk, if all goes well, you're presented with the Macintosh desktop. Chapter 1 covered this in great detail, explaining the uses for the various desk accessories, windows, icons, etc. Once you enter an application like MacPaint, however, your desktop changes. Rather than simulating a true table top, the MacPaint desktop is more like an easel. Although the MacPaint desktop shares many of the features of the opening Macintosh desktop—the pull-down menus and the use of windows, to name two—MacPaint doesn't let you resize the drawing window. Neither can you work with any documents other than MacPaint documents, and you must use them through New and Open in the File menu.

The differences between the two desktops—the lack of file moving and deleting, for example—might lead you to believe that they are separated by an electronic barrier and cannot communicate. While it is true you can't drag the drawing window off the screen and have it turn up on the Macintosh desktop, there are two fundamental means used by the desktop and MacPaint to communicate: the Clipboard and the Scrapbook.

While learning to edit on the desktop, one of the features you used was the Clipboard. Any text that you edited in the information windows or the Note Pad, using the Edit menu, passed through the Clipboard. When you selected a piece of text in the comment box of an information window and executed Copy from the Edit menu, the selected text was copied to the Clipboard. Similarly, text that was cut ended up on the Clipboard. Once fastened to the Clipboard, you could then reposition the text anywhere you wanted, even in another window or another document. Then, by choosing Paste, you could place it exactly where you wanted.

Like its real-world counterpart, the Macintosh Clipboard holds whatever text or picture you place there until you copy or cut something new to it. This makes it the primary tool for *all* editing with both text and pictures. When you edit pictures in a few pages, you'll use the Clipboard. When you edit MacWrite documents, you'll use the Clipboard. What makes the Clipboard very important, and unique in the computer world, is that it lets you transfer and edit not only within applications, but between applications. This is an especially powerful feature. With it, you can cut, copy, and paste to your heart's content between

MacWrite and MacPaint. Note that the content of the Clipboard is lost when the Macintosh is RESET (with the programmer's switch) or when its power is turned off and then on again. It is also lost if a new application with its own Clipboard file replaces the original startup disk in the computer.

Like the Clipboard, the Scrapbook holds both text and pictures and lets you place them anywhere you want in documents. Unlike the Clipboard, the Scrapbook holds more than one picture, piece of text, or both, at a time, and any item placed into the Scrapbook is permanently appended to the end of existing items. This lets you store frequently used blocks of text, headlines, and pictures for pasting into documents. Scanning the contents of the Scrapbook, as you learned in Chapter 1, is as simple as calling it up from the Apple menu and paging through its contents with the mouse.

The major difference between the Clipboard and Scrapbook has to do with placing a picture or block of text into something you're working on. You cannot paste directly from the Scrapbook into your current document. Only the Clipboard performs this role. Therefore, to insert a Scrapbook item into a document, you must open the Scrapbook, page through it until you find what you want, and cut or copy it to the Clipboard. Then you can paste it from the Edit menu into your document.

This process sounds more complicated than it actually is. Once you use the Scrapbook/Clipboard combination a few times, the whole process becomes second nature. However, until you develop this Macintosh sixth sense, there is one pitfall to watch for. Once you place a new item on the Clipboard, the old item is lost forever. Not even Undo can save you. Therefore, don't put irreplaceable items on the Clipboard before you use the Scrapbook. If you must, copy your gem into the Scrapbook to guarantee you'll always have a copy. Otherwise, you risk losing it for good.

Where's the Fish?

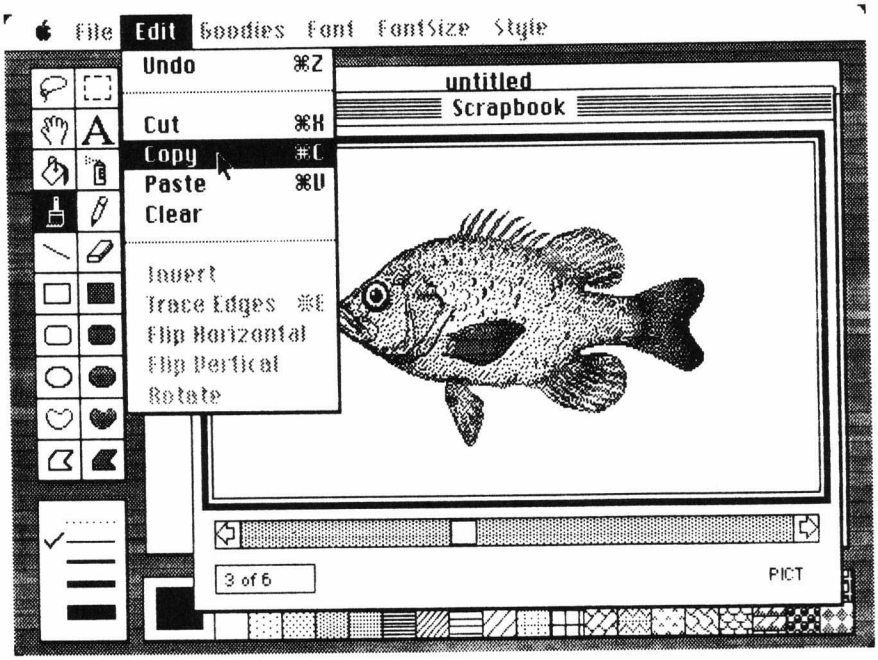
The following pages use the picture of a fish that Apple provided with the original version of the System Disk and the Write/Paint disk as an example of the fantastic things you can draw with MacPaint. Unfortunately, the newer versions of the System Disk and the Write/Paint disk don't come with the fish in their Scrapbooks. Instead, they display equally attractive pictures of a bar graph, the Macintosh logo, and

something called Cafe Mac, which looks like the beginning of a brunch invitation. If you only own the newest version of the System Disk and Write/Paint, then you'll have to follow the discussion without the benefit of your own fish picture. Of course, the techniques described work with any picture. If you still have a copy of the original System Disk and Write/Paint, you can copy the Scrapbook file from the System Folder of one of these disks onto your new, working version of Write-Paint. Assuming you haven't erased the fish from the original, you can follow this discussion with your very own fish.

Going Fishing

To help you find uses for the Scrapbook, Apple has put the five items you looked at in Chapter 1 into every Macintosh Scrapbook on the Write/Paint master disk. Now's the time to put those pictures to use in this tutorial.

Clean off the drawing window by double-clicking on the eraser icon. Go into the Apple menu and select the Scrapbook by sliding the pointer to Scrapbook and releasing the mouse button. After a few seconds, the Scrapbook window appears displaying the first document in its collection.



Copy the fish from the Scrapbook to the Clipboard with the Copy command.

Unless the picture of the fish is already showing, page through the Scrapbook using the scroll bar at the bottom of the Scrapbook window until you find the fish. Clicking on the gray scroll bar causes the picture to jump a frame at a time in the direction indicated by the arrows. Dragging the Scroll Box lets you page through the Scrapbook in larger increments, jumping several items at once. Clicking the arrows works the same way as clicking the scroll bar.

Assuming you have the fish picture in your Scrapbook, display it in the Scrapbook window, where it will be selected for use automatically with the Edit menu commands. Now go to the Edit menu and select Copy, or use <Command-C> for the same result. After the disk drive settles down, there is an exact duplicate of the fish on the Clipboard.

Close the Scrapbook window by clicking on the close box of its window. As the Scrapbook vanishes and you return to MacPaint, all your menus become available again.

Go back into the Edit menu and notice that only two commands are available: Undo and Paste. You don't have anything to Undo but you do have something to Paste. Select Paste by moving the pointer to it and releasing the mouse button or by pressing <Command-V>. After the disk drive quiets, a carbon copy of the fish, encircled by a blinking line, is in the center of your drawing window.

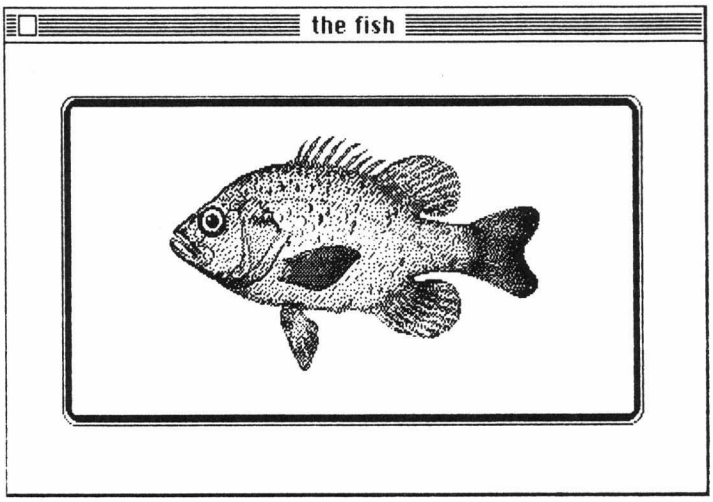
This line, called the lasso, is an editing tool that you'll use when you edit the pictures you create in the drawing window. The lasso and the other selection tool—the selection rectangle or marquee, for selecting rectangular pictures or parts of pictures—are the only two tools in the MacPaint tool palette that you haven't used yet. Once you finish this section on using the Scrapbook and Clipboard, I'll introduce both tools and give several examples of how you can use them to edit your MacPaint documents.

What's important for now is that every time you paste directly from the Scrapbook to the Clipboard and into MacPaint, your selection is surrounded by the lasso. This lets you reposition the image anywhere you want in the drawing window. To move the fish around, position the pointer anywhere on the fish. You'll know you're on it when the pointer turns into an arrow. Without touching any keys on the keyboard, drag the fish around the screen by pressing and holding the mouse button. When you want to place the fish in the window, release the mouse button and pull the arrow outside of the blinking area so that the pointer becomes the lasso. To place the fish permanently at its present spot in the drawing window, just click once on the mouse button. The blinking selection vanishes and the fish is now part of your MacPaint document. Notice that the lasso icon at the top left of the tool palette is selected. If you want to do any other work on your document, you must select the tool by clicking on its icon.

Mounting the Fish

Now that you've caught the fish, it's time to make your catch permanent by mounting it and hanging it on the wall for everyone to see. Place the fish in the center of the screen, go to the tool palette and select the hollow rounded rectangle. Next pick the fourth border width from the border palette. Move the pointer onto the drawing window and place the large cross above and to the left of the front of the fish. Carefully drag the rectangle down and to the right with the mouse. Pay attention to the space between the edges of the frame and the fish. Place the frame around the fish by releasing the mouse button, leaving about a half inch of space around the entire fish. You can eyeball the dimensions rather easily. If you make a mistake, you can undo it and start over.

Since most classy trophies are fastened to a nice piece of hand-worked wood, you should add another, smaller border around the one you just made. Keep the hollow rounded rectangle selected but change the border width to the second size. Move the pointer back to the drawing window and position the cross hair just outside the top left corner of the frame. Once you've found the spot, gently press the mouse button, so as not to move your anchor point, and drag the thin frame across the fish until it encircles the larger frame completely. Check to see that the space between the large frame and the new one is uniform. If it isn't, gently pivot and roll the mouse until the frame is aligned correctly. Place the new frame by releasing the mouse button.

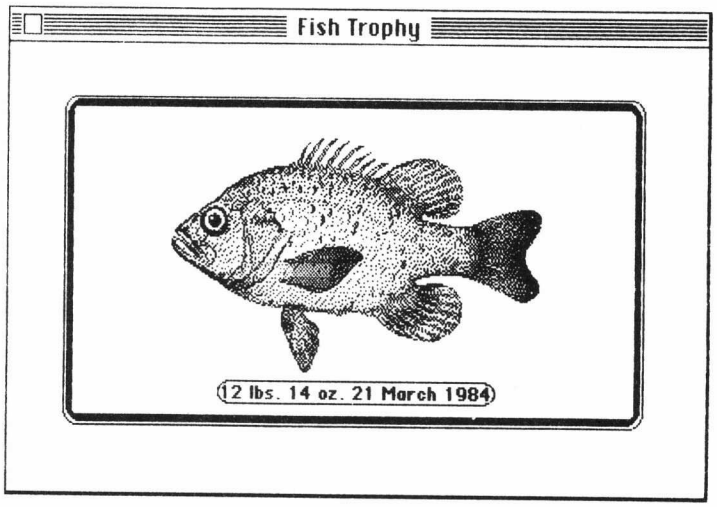


Framed fish.

Now that the mounting plaque has a more realistic look, you can concentrate on polishing the plaque's interior. The first thing you'll do is add a legend to describe the fish and the date of its catch. Select the text icon, the A, in the tool palette. Go into the Font menu and select Geneva. Change the size of the type by going into the FontSize menu and selecting 9 point. Since the letters are small, you'll need to make them more readable by boldfacing them. Select Bold from the Style menu or use <Command- B>. Slide the I-beam pointer into the frame just below the fish, taking care to line up the vertical of the I-beam with the fish's eye. Click the mouse button to place the insertion point and type:

12 lbs. 14 oz. 21 March 1984

This is a whopper! Correct any errors with the Backspace key. Once you've typed in the legend, go back to the tool palette and select the hollow rounded rectangle again. Check to confirm that the border is still a single pixel wide. Move the cross hair into the drawing window and place the pointer just above and to the left of the 12 in the legend. Press and hold the mouse button and drag the rectangle across the text so that you completely frame it. Release the mouse button to place the frame.



Framed fish with legend.

Saving and Naming Documents

By now you've invested quite a bit of work in copying the fish from the Scrapbook onto the Clipboard and then pasting it into the drawing window. It would be a shame to lose the fruits of your effort to an unforeseen event, such as a power failure or the accidental pulling of the Macintosh plug out of the wall. But mishaps do occur and can ruin in a second the precious work that took you hours to create. Though the framed fish is hardly the pinnacle of what you can do with MacPaint, it is important as an example and should be treated with the same consideration that any of your work deserves. To this end, you'll employ the Save option from the File menu to write what's on the screen to the disk. In the event of power failure or the like, your work is safely stored, ready for you to retrieve when you need it.

Unlike the Save you made at the beginning of this chapter, you'll Save the preliminary copy of the framed fish to the Write-Paint disk. As you make further revisions, you'll update your Save by writing the new version of the picture over the previous version. This lets you use a single file for storing different stages of the picture. Each new Save covers or "overwrites" the previous Save, thereby updating the file while removing the previous version.

Use the pointer to go into the File menu and select Save. At the Save dialog box, use the keyboard to name the document Fish Trophy. Hit <Return>. The entire document will be saved to the Write-Paint disk in a few moments. (If, for some reason, you want to Save the Fish Trophy document to another disk, either click the Eject button in the Save box as before, or click the Drive button to Save to the disk in the external disk drive.)

Additional Touches

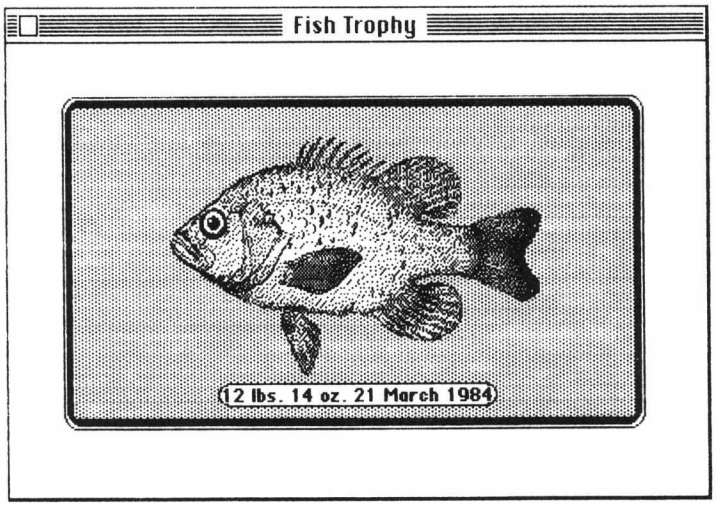
Now for one final touch to make this plaque look even better, we will fill in the white area inside the frame. Select the paint can from the tool palette. Next, go down to the pattern palette. Since you have Undo at your disposal, you can experiment with several patterns until you find the one that looks best.

For filling in the area around the fish, darker patterns should be avoided. To illustrate, select black from the pattern palette and place the paint can inside the frame around the fish. Click to fill the area. Aside from being an ungainly background, black fills in certain areas of the fish and absorbs some of the detail. Choose Undo from the Edit menu or use the handy <`> shortcut to get rid of the black. Using <`> is the fastest way to flip back and forth between windows without having the bother of the pull-down menu.

A lighter pattern absorbs less of the fish's details and more accurately highlights the shading and texture within the fish. Choose the desktop gray pattern from the pattern palette and fill the frame area by clicking on the mouse button. While this certainly is an improvement over solid black, the gray absorbs too much of the detail in the fish, especially around the top fins. Flip back and forth between windows with <`> to see the difference.

Since you want to concentrate on the lighter patterns, you might be tempted to look at one of the tile patterns on the right-hand side of the pattern palette. They're certainly light enough not to absorb the detail in the fish, and they should highlight its shading and texture rather well. Choose the rounded tile pattern that's fifth from the right on the top row of the pattern palette. Place the paint can into the frame and click to fill the area with tiles. While all the features of the fish are easily distinguishable, especially the fins, the tiles make the fish look as if it were mounted on a bathroom floor instead of a plaque. Undo your way out.

The best-looking pattern for filling the frame area is the light-gray pattern located directly below the desktop gray pattern in the palette. Select it and fill the frame with it.



The lighter, gray pattern complements the features of the fish.

Now that looks nice. It's light enough to accent the detail in the fish and just dense enough to make for a nice texture. If you look closely, you can see that the pattern actually fills in the areas between the top fins, rather than altering or absorbing them.

Saving Your Catch

You've put quite a bit of work into copying the fish from the Scrapbook to the Clipboard and onto the drawing window, and then into enhancing it. All your modifications and experiments have produced not only a rather nice-looking MacPaint document, they have walked you through several of the most useful options to be found in MacPaint. You have also learned that Undo is a very powerful editing tool.

It's time to Save your final creation. The first version of the fish was Saved under the name Fish Trophy on the Write-Paint disk. To save the final version of the fish, you must select Save from the File menu again. Your final version of Fish Trophy is now safely committed to the data disk. Also notice that this Save didn't require you to type in a name for the document. When you use Save the first time, on an untitled document, you are asked to name the file. Once named, subsequent calls to Save automatically use the document's name. This eliminates having to name the document at each Save. If you want to Save a file several

times, each time under a different name, use Save As from the File menu. This option requires you to name the document you save each time you execute the Save As command. This lets you store various versions of your work so that you can examine the progress of your thoughts.

Before closing the Fish Trophy to start work on the next section, you might want to print it out on the Imagewriter. Select Print Draft or Print Final from the File menu while the document is open in the drawing window.

Robotizing the World

If you've successfully saved the Fish Trophy, close the current drawing window by clicking in the close box at the upper left corner of the drawing window. Now that the fish has been mounted, it's time to root through the Scrapbook again to pick out one of the other gems that the Apple artists have given you to work with. Reopening the Scrapbook should pose no particular problem for you. To be positive, you'll review the steps required to place the Scrapbook in the MacPaint desktop.

After closing the Fish Trophy file, go to the Apple menu and select Scrapbook with the mouse pointer. Open the Scrapbook by releasing the mouse button. After the disk drive whirs a moment, the first page of the Scrapbook is visible in the window. You can keep track of the number of items in the Scrapbook by referring to the small box at the lower left corner of the window. This displays the number of the current picture out of the total number of pictures in the Scrapbook.

Though the Scrapbook will hold any number of pictures or pieces of text, it's a good idea to keep track of what's inside it. Clear off any unwanted pictures or blocks of text by paging to them in the Scrapbook and choosing Clear from the Edit menu. Remember that the currently displayed text or picture is selected automatically for use with the Edit commands. Clearing off unwanted items helps reduce the number of pages you have to flip through to find what you're looking for and makes organizing the Scrapbook much simpler. Clear does not, however, place the item on the Clipboard.

Flip through the Scrapbook pages by clicking on the gray scroll bar at the bottom of the window. Make your way to the robot picture. This is a friendly looking robot. What's more, the picture of the robot appears on both the original System Disk and Write/Paint as well as on their newer, updated counterparts. No matter which version you own, you can use the robot for the following discussion.

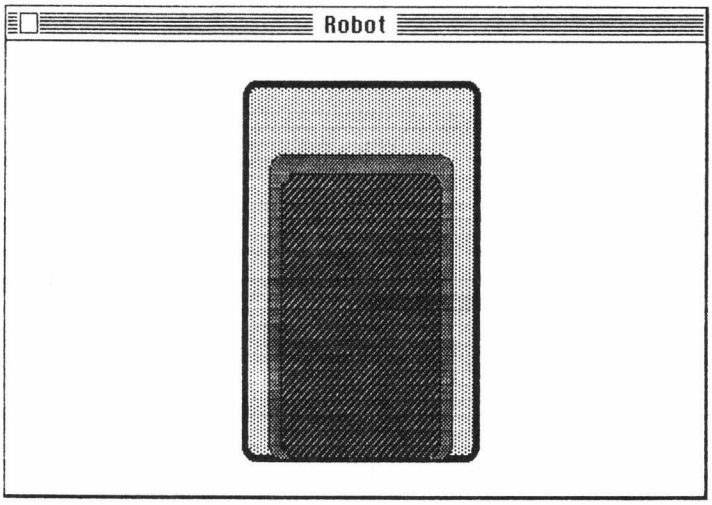
You'll copy this robot to the Clipboard and then place it in its own MacPaint document. Make sure the robot is showing in the Scrapbook window. Move the pointer to the Edit menu and select Copy. You can also use <Command-C> to copy the robot. Don't accidentally choose Cut or Clear, as these will remove the robot from the Scrapbook. You cannot Undo the robot back to the Scrapbook.

If the robot has been copied successfully to the Clipboard, you're only a step away from inserting it into a new MacPaint document. First, close the Scrapbook by clicking in its close box. Assuming there is no document opened on the MacPaint desktop, slide the pointer to the File menu and select New. This opens a fresh, untitled document for you to work in.

To show that you can paste into an existing document, you'll draw a frame for the robot, much like you did for the fish, only this time you'll draw it *before* pasting the robot into the document. Select the fourth border from the border palette, then select the hollow rounded rectangle. Move the cross onto the window and place it near the top middle of the drawing area. Drag the rectangle across the screen, making a vertical shape. The edges should be at least two inches across and two and a half to three inches high. Place the frame in the document by releasing the mouse button.

Go to the border palette and select the single-pixel-wide border. Move the cross hair onto the window and position it about one quarter of the way down inside the frame you just drew. Drag the narrow rectangle down and to the right, leaving about a quarter inch of space on either side of the new frame. Drag the bottom of the rectangle till it's flush with the bottom of the thicker frame. Place the rectangle by releasing the mouse button. Make another, smaller rectangle within the new one, being careful that the bottom of it is flush with the thicker surrounding frame.

Fill the smallest frame with the dark banded pattern located seven patterns from the left, on top of the pattern palette. Use the paint can for this. To fill the small border between the filled frame and the next largest frame, use the desktop gray pattern. Fill the remaining white space within the large frame with the gray and white pattern located directly underneath the desktop gray pattern. This completes the preparations for pasting the robot into the document.



Preparing the background for the robot.

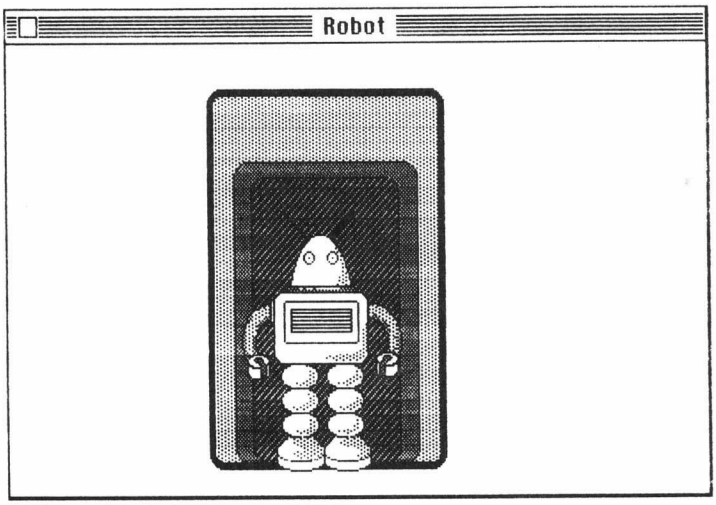
Pasting the Robot

Use the pointer to open the pull-down Edit menu. Select Paste. After the disk stops humming, the robot should be somewhere near the middle of the page. The robot is surrounded by the blinking lasso. The lasso is used to "rope" off nonrectangular areas of any shape. These areas are then selected for use with the Edit commands, or with some advanced MacPaint features that will be covered shortly.

Notice that the lasso does not select the background around its object. That's why you can paste the robot over the work you've already done without having to go back and fill in large areas with the underlying pattern. This is in contrast to the selection rectangle, which selects everything within its boundaries, including the background, be it white or a pattern.

To reposition the robot within the frame, move the pointer, now in the shape of a loop of rope, into the blinking area. When the lasso changes into an arrow, you're able to move the robot. Place the robot squarely within the frame, making sure its feet touch bottom. Drop the robot into the picture by clicking the mouse button after moving the lasso outside the selected area of the robot. By now, your robot should look like a menacing figure standing in the doorway of a spacecraft. If not, a few strokes of MacPaint magic can make it so.

The only other step needed to complete this picture is to fill in the small white gap between the robot's legs. Because the robot's feet are connected at the very bottom, the lasso was not able to outline the robot completely. Therefore, you must fill in this white area using the paint can and selecting the black banded pattern. Position the paint can anywhere within the white area and click to fill it. Now the entire doorway is complete.



Finished robot picture.

You will want to come back to this picture in the next section so you should save it to disk. Simply save it to the Write-Paint disk. Later, when you return to the Macintosh desktop, you'll copy it, and any other MacPaint documents you create, to the data disks. For now, choose Save from the File menu and name the document Robot. Hit <Return> to start the save. This picture doesn't take up too much room on the Write-Paint disk, so the entire saving process takes only a few seconds. Once complete, click in the close box to shut the Robot document. This returns you to the empty MacPaint desktop.

Editing Pictures

In using the Scrapbook and Clipboard to paste pictures into a MacPaint document, you were introduced to two selection tools: the selection rectangle or marquee, and the lasso. Both allow you to reposition the item pasted from the Clipboard, or any item you select with them, anywhere within the drawing window. Though the selection tools are frequently used for moving objects within documents, they are also the means by which you select pieces of pictures for editing, duplicating, resizing, making repeating copies, and performing several different rotations. If you recall working with text at the desktop, selecting was a matter of dragging the mouse over the necessary line or lines. MacPaint's selection tools perform the exact same role, in a slightly different fashion, for pictures.

Using the selection tools opens an entirely new dimension of MacPaint. You don't have to be content with the placement of objects on your screen. A simple click on the appropriate selection icon lets you move an entire block around the screen or zero in on an irregularly shaped slice of picture for repositioning. Selected pieces of pictures may also be copied to put in the Clipboard *en route* to the Scrapbook or to paste into other MacPaint or MacWrite documents. Flip selected items in either the vertical or horizontal direction to make mirror images or upside-down versions of objects. Selected items may also be rotated in 90 degree increments, allowing you to stand objects on their tops. Combinations of flips and rotations produce even more interesting results. The special Trace Edges command within the Edit menu lets you create spectacular outline effects by continually tracing another border, slightly larger than the previous one, and placing it around the object.

Simple Selecting

Selecting objects for repositioning or other manipulations is no more difficult than clicking the appropriate icon. To illustrate, open a new document with the New command and select the filled rectangle shape from the tool palette. Go down to the border palette and select the largest border width by clicking the pointer on it. Pick a new pattern from the pattern palette. Anything but black or white will do. Move the cross onto the screen and stretch a one to two-inch rectangle across the middle.

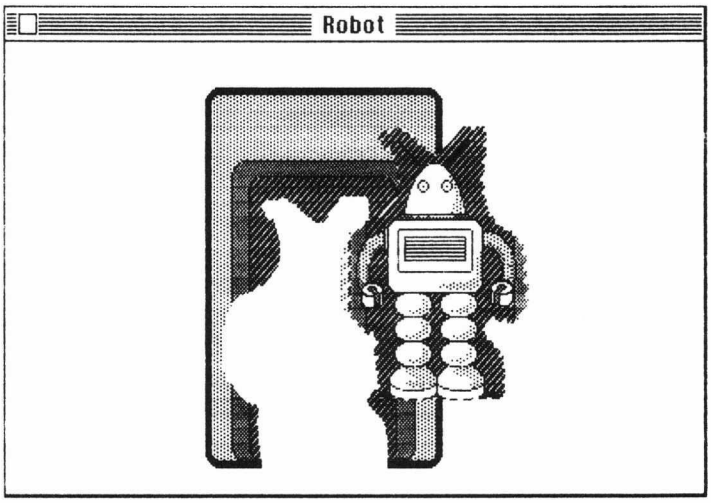
Go back to the tool palette with the pointer and select the marquee at the upper right of the tool palette icons. Bring the cross hair back onto the drawing window and place it above the top left corner of the filled shape. Once you've found your anchor point, press and hold the mouse button while you drag the blinking marquee down and to the right, covering about one quarter of the filled rectangle. Release the mouse button to activate the selection rectangle.

Move the pointer inside the blinking area until it changes from the cross hair into the arrow, then drag the selected area away from the filled rectangle. You've just chopped the entire corner off the rectangle. Place the selected area anywhere on the screen, even on top of the rest of the filled rectangle. Anything that's selected, according to the *MacPaint* reference manual, floats in its own plane above the drawing window. This lets you look at several positions without affecting what's underneath the selected area.

Move the selected piece around the screen some more, then place it in different locations by releasing the mouse button. Pick it up again by sliding the arrow pointer with the blinking area and dragging again. Don't click the pointer when it's outside of the selected rectangle for the moment. That's how you place it in the document. After a few placings, move the pointer to the Edit menu and select Undo. Despite the auditions you gave the piece in various places on the window, Undo undoes *all* work with the selection tool. Select Undo from the Edit menu to put the selected area back in its original place, then move the pointer out of the marquee and click anywhere in the window. The selection process is finished.

Move the selection cross hair back into the filled shape and cordon off a small section of its interior. Now remove the selected area with the pointer and place it away from the main shape. Clicking once will fasten it in the new position. Go back to what's left of the filled shape

and pull out another piece of it. Carry this new selection to some other location on the screen and drop it there by dragging and then clicking outside the marquee. You can completely dismantle anything in the drawing window in this fashion.

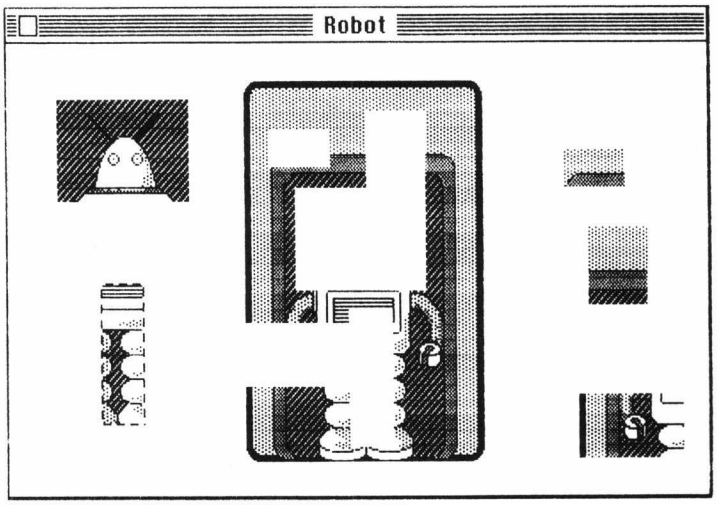


Any shape may be selected from MacPaint using the lasso.

Rope 'Em

Now that you have the feel for using the selection rectangle, it's time to put the lasso to use. Clear off your screen, then go back to the filled rectangle and place one in the middle of the drawing window. After selecting the lasso icon at the upper left of the tool palette, move the pointer onto the drawing window, where it will take the shape of the lasso itself. The dangling tip of the lasso is used much like the tip of the pencil. Instead of drawing on the screen, however, the lasso tip ropes off the area you want to select.

Place the lasso somewhere outside the border of the filled shape and drag the pointer through the shape in a half-moon motion, making sure to connect the end of the lasso to the starting point. Releasing the mouse button selects the area. Pay careful attention to the fact that the lasso, in contrast to the marquee, does not select the background, if it's white, whether you rope part of it off or not. This lets you write over an existing pattern with a selected area, as you did with the robot only a few pages back. From here on, the lassoed area responds the same way an area selected with the marquee does. Position the pointer (within the blinking area) until it becomes an arrow, then drag it out and away from its parent shape. Place it in a few different sections of the window to see how it looks. Undo replaces the selected area back on the filled rectangle.



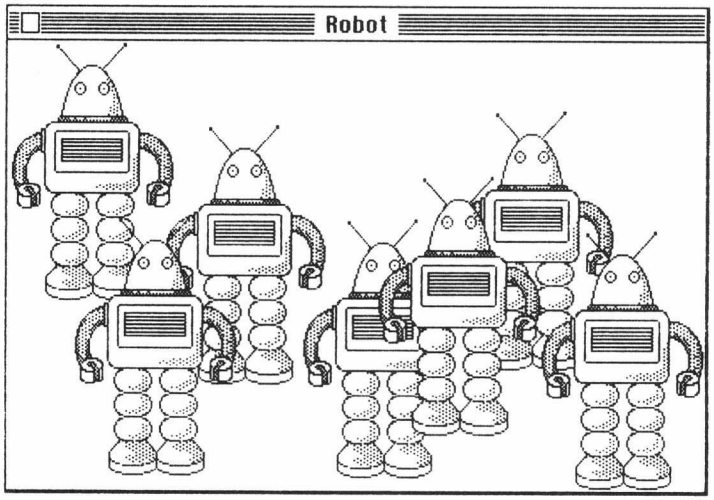
Any size rectangular shape may be selected from MacPaint using the selection rectangle or marquee.

Fancier Selections

After you've played with the lasso for a while, clear off your screen with an abrupt double-click on the eraser. Now go to the Edit menu and select Paste. Whatever's currently on the Clipboard will be pasted into the middle of the drawing window automatically. Unless you've cut or copied something else to the Clipboard, the robot should still be there. If the robot doesn't appear in your window after Paste, clear the screen and copy the robot from the Scrapbook to the Clipboard. Then close the Scrapbook and paste the robot into the window.

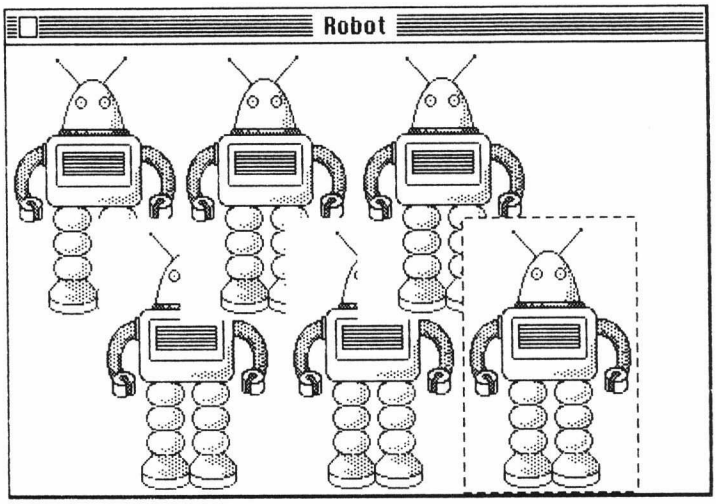
Making Copies—Reproducing Robots

Once you have the selected robot in the middle of the screen, you can give it company by making a duplicate of it. How? Simply move the lasso into the blinking robot until you have the arrow pointer. Then, *before* you press the mouse button to drag the robot, press the Option key. Now drag. What was one is now two. And the process can be repeated indefinitely. If you like, fill the screen with robots.



Selected items are copied by holding down the Option key and dragging the selection away. Copies may be placed on one another.

The principle here applies to all selected items in MacPaint. Using either the lasso or the marquee, a selected object may be copied as many times as you like by pressing the Option key while dragging the object in the window. The only difference between the lasso and the marquee for copying has to do with treatment of the white background. The lasso does not select this area and makes only a copy of the blinking image. Copies made with the selection rectangle, however, *do* carry their backgrounds with them. If you overlay copies of items made with the marquee, the background area—if present—will be part of the copy and may mar the overall result. Always use the lasso when you want to overlay selected copies.



Copies made using the marquee contain the background as well as the selected item.

Robots in a Hurry

You can copy robots, or any selected item for that matter, by pressing the Option key while you peel a clone from the original. If, however, you need plenty of items in a hurry, MacPaint has a feature that lets you make repeating copies to your heart's content. The whole process requires pressing two keys in conjunction with dragging the selected item around the screen.

If you've made a screenful of robots, clear off the screen with a double-click on the eraser. Go back to the Edit menu and select Paste to put a new robot in the drawing window. Position the pointer inside the

blinking robot. To make repeating copies, all you have to do is hold down the Option key and the Command key together while you drag the robot image across the screen. Don't release the mouse button until you're finished placing robots on the screen. Once you've started making copies, you can release the keyboard keys. The computer remembers that they've been pressed.

Fill the screen with robots by dragging all over it. The faster you drag, the more space there is between the individual robots. If you copy over the same area slowly, you can pack the images of a great many robots on top of one another, giving the illusion of a great line or wall of robots. To stop the copying, release the mouse button. Your robot is still selected until you click somewhere on the screen.

An interesting and very useful technique MacPaint provides for repeating copies lets you set the spacing between copies, thereby controlling the number of items you can repeat-copy across the window or the number you can "burn" in by copying slowly over the same area again and again. Setting the spacing between copies is done from the border palette. Instead of border widths or line widths for the ray, when using the selection rectangle or lasso, the lines represent the spacing between copies. The first width, the dotted line, allows you to repeat copy with even no space between copies. Using this width lets you do very detailed rubbing of an item over and over, thereby filling in behind the image with black silhouettes.

The remaining widths in the border palette allow you to leave from one to eight pixels between copies. Of course, the rate at which you drag the mouse also affects the spacing. Rapidly rolling the mouse places larger spaces between copies than does slowly rolling the mouse. The only way to get a feel for this is to actually create several sets of repeating copies, making sure to vary the speed of the mouse and the widths from the border palette.

In General

Gang copying with the selection rectangle works like the lasso, with the familiar exception that any background within the marquee is also copied. In some cases, this produces an appealing effect. In others, like copying robots, its effect is detrimental to the final picture. In general, making repeating copies creates some very interesting images and is particularly useful for filling in areas with shapes or patterns that can't be handled by the paint can, spray can, or paintbrush.

Editing with the Selection Rectangle

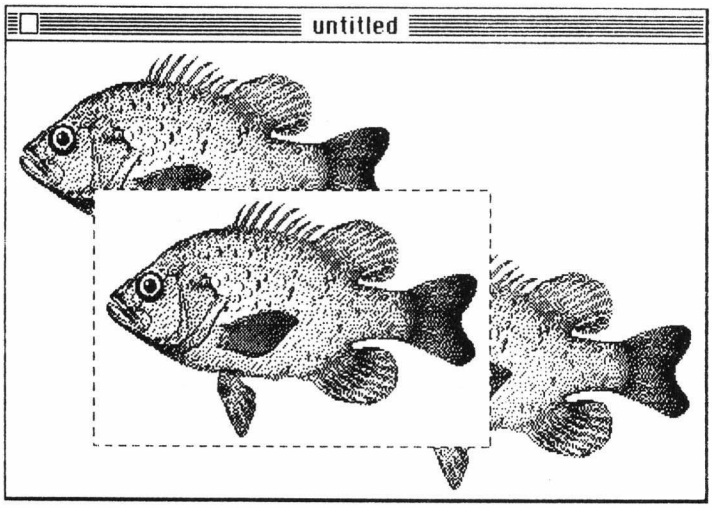
Double-click on the eraser icon, then go to the Apple menu and select the Scrapbook. While it's opening, I'll tell you that you want to copy the fish once again to the Clipboard, so you can paste it into the drawing window. If you don't have the fish picture, any picture in the Scrapbook will do. Scroll through the pages of the Scrapbook until you come across the fish. Move the pointer to the Edit menu and select Copy to copy the fish to the Clipboard. Once copied, close the Scrapbook window by clicking on its close box.

Back at the drawing window, choose Paste from the Edit menu to place the fish in the window. The fish is pasted into the window surrounded by the familiar lasso. Move the cross hair into the drawing window and click once anywhere outside the selected fish. This removes the selection, letting you place your own selection rectangle around the fish. Select the marquee icon from the top right of the tool palette. To Select the fish again, position the cross hair like you were going to frame the fish with one of the hollow shapes. Drag the selection rectangle over the fish, making sure that no part of the fish is cut by the blinking line. Place the selection rectangle so that it just surrounds the fish, leaving only a quarter of an inch or so around its entire perimeter.

Once selected again, the fish is ready for moving, copying, repeat copying, and several extra commands that can be performed only with the selection rectangle, not the lasso. Moving the fish with the selection rectangle is a simple matter of placing the pointer inside the blinking rectangle so that it becomes the arrow, then dragging the selected picture around the drawing window. Try moving the fish around the window a few times. Notice that the borders of the selection rectangle, not the outline of the fish itself, bump the edges of the window.

Making copies of an item selected with the marquee employs the same procedure as making copies with the lasso. The selected item is dragged to where you want the copy, the Option key is pressed, and the copy is placed as you drag away the original. Make a copy of the fish in the upper left corner of the drawing window, drag the fish to the spot, release the mouse button, press <Option>, and drag the original

fish away to the lower right-hand corner of the window. Make a second copy of the fish in the lower right-hand corner using the same procedure. Now drag the original fish, still selected in the marquee, around the window. Unless your fish has shrunk, there's no place on the screen you can place it without the borders of its marquee overlapping the two copies.



Copying the selected fish with the marquee.

Making repeating copies of items selected with the marquee follows the procedures used with the lasso. The selected item is dragged to the place the copies are to begin, the mouse button is released, both <Command> and <Option> are pressed simultaneously, and the copies are dragged around the screen. As before, the border palette lines control the space between repeating copies. Unless your selected item is rectangular in shape, making repeating copies with the marquee produces an ungainly montage of copies and stray borders. To convince yourself, hold down the Command and Option keys while you drag the selected fish around the drawing window. Unless this is the effect you want, roping off the selected item with the lasso is the simplest, cleanest way to make repeating copies.

Stretching a Fish Story

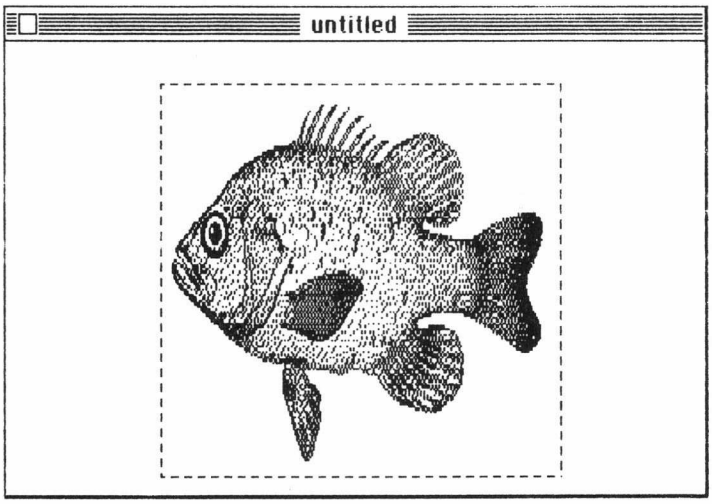
The lasso and the selection rectangle or marquee both provide basic selecting and editing in MacPaint. Both let you move, copy, and repeat-copy any selected item, be it freeform drawing, filled shapes, or text. Both tools let you perform these functions in a similar manner. The two selection tools first part company in regard to use—the lasso for selecting nonrectangular areas, the marquee for selecting rectangular areas. After use, the two tools part company again in a more pronounced fashion in regard to the commands available to each tool. Unlike the lasso, which performs the basics of editing pictures, the selection rectangle offers four extra commands for flipping and rotating the selected image, tracing its borders, and a special technique for resizing the selected image.

Of all the tools, techniques, and tricks you've seen so far in MacPaint, nothing approaches the excitement of actually stretching an image across the window to double its size or shrink it in half. Using the simple combination of the Command key in conjunction with dragging the selection rectangle, you can double, triple, or shrink into oblivion any selected item in MacPaint.

To see resizing in action, first clean off your drawing window with a trusty double-click on the eraser icon. Go back to the Edit menu and paste the fish into the window. If for some reason the fish is no longer on the Clipboard, you should be able to go to the Scrapbook, copy the fish to the Clipboard, shut the Scrapbook, and paste the fish into your MacPaint window.

Once you have the fish pasted into the window, resize its selection rectangle by first clicking the cross hair outside of the blinking box. Then drag a new, smaller selection rectangle over the fish, carefully including all of the fish, without chopping off any extremities. Move the fish to the center of the window, if it's not already there, by dragging. To stretch the fish downward, position the pointer on the bottom of the blinking marquee, just inside the rectangle so that the pointer takes the

shape of the arrow. Press and hold the Command key while you gently drag the pointer down toward the bottom of the drawing window. Watch as the fish, once slender, turns into something of a blowfish.



Stretch items selected with the marquee by placing the tip of the arrow along the edge of the selection rectangle. Then hold down the Option and Command keys, and drag.

To compare the new fish with the old one, strike <`> to Undo the stretching. Look how small the original fish is. Using Undo lets you resize, stretch, and distort the fish, or any item selected with the marquee, any number of times, and still return to the original, provided you haven't selected another tool or operation.

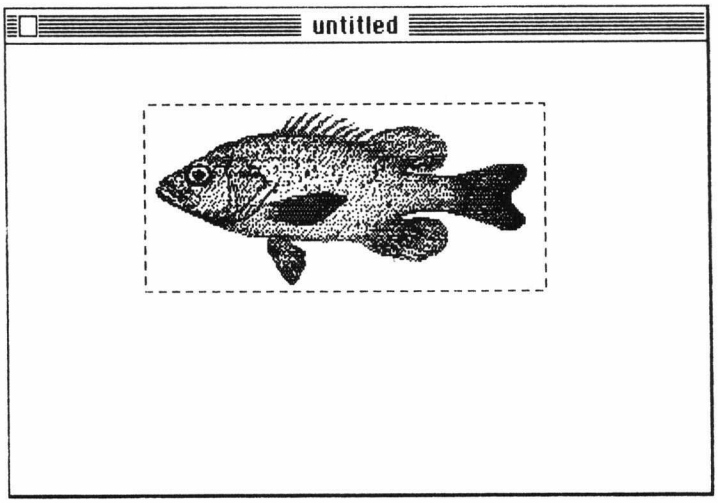
Resizing can also take place from the top of the selected item by moving the pointer to the top of the selection rectangle and, making sure the pointer is in the shape of the arrow, dragging while pressing the Command key. If you haven't executed Undo, do so to return the fish to its original state, and move the arrow to the top of the marquee. Hold down <Command> as you drag upward toward the menu bar. Watch as the fish expands, this time anchored from the bottom and rising on the top. Again, Undo the changes to view the original fish.

As you have no doubt guessed, you can stretch in a horizontal direction as well. Line the pointer up along the right edge of the blinking rectangle so that it takes the arrow shape. Hold down the Command key while you drag the rectangle to the right side of the drawing

window. Note that after you press the mouse button while holding <Command>, you can release <Command> and still resize in the same manner. You only need press <Command> until you start dragging. As you drag toward the right, watch the fish stretch in short bursts. Don't drag the rectangle off the edge of the window. If you do, simply drag it back onto the window by dragging to the left.

Similar resizing can be done from right to left. Undo your stretched fish and line the arrow pointer along the left edge of the blinking marquee. Hold <Command> down as you start to drag toward the left border of the window. Release the Command key after you start dragging. Drag the left edge of the selection rectangle against the left edge of the drawing window.

Stretching inward from any of the four sides of the selection rectangle shrinks the selected item. You can't make the item disappear completely, but you can shrink it into one rather slender vertical line. Undo your last stretch, press the Command key, and drag from the right edge of the fish toward its left edge. Continue to drag the fish right through the vertical line stage and watch the fish emerge from the left as it springs into full form once again. Notice that you haven't made a mirror image of the fish; you've just moved the anchor edge one marquee frame to the left. While this is a perfectly valid technique for moving the fish while resizing it, it's simpler to move the fish first and then resize.



Shrink selected items by dragging the pointer in toward the object.

Now that you know how to resize items selected with the marquee, you can make the fish fill an entire window, thereby letting your friends see the size of "the big one that got away!"

Stretching and Shrinking Text

Using the selection rectangle, you can resize any segment of a picture, including the text that you place into your MacPaint documents. In fact, all text in a MacPaint document is as much of a graphic image as any line painted with the paintbrush or any pattern sprayed with the spray can. As such, text in MacPaint is easily moved, copied, repeat copied, and stretched and reduced using the lasso and selection rectangle.

To illustrate and to make a point about the quality of the items you resize, clean off your drawing window with a double-click on the eraser and then select the A text icon from the tool palette. If the font, size, and style of the current text are not set at default value, i.e., 12 point New York plain, then go into the Font, FontSize, and Style menus and select the default values. Place the I-beam somewhere near the middle of the empty window and type the word "Stretch." Go back to the tool palette and select the marquee icon by clicking on it. Place the cross hair near the top left of the word and drag a small selection rectangle over the word, completely surrounding it. Then put the pointer in the blinking box and drag Stretch around the screen. Dragging text repositions it. Make a single copy of Stretch by holding the Option key while you peel away the original from the duplicate. Make some repeating copies of Stretch by holding both the Command and Option keys down while you drag around the window. Fill the window with Stretch. Use the border palette to control the spacing between copies. Undo all your copies when you've finished experimenting with them.

Lassoing Text

A useful technique for writing copies of text over one another, or over designs, is to lasso the text instead of selecting it with the marquee. This gives you the chance to overwrite, with a transparent effect, any number of words or phrases. Using Stretch as an example, go to the

tool palette and select the lasso by clicking once on it. Move the lasso back into the drawing window and draw a wide circle around the word. When you connect the ends and release the mouse button, the lasso pulls tight around each of the seven letters in Stretch. And though each letter is blinking independently, the entire word is selected. Move the pointer onto the word so that the lasso becomes the familiar arrow pointer for moving, copying, and editing pictures. Drag the word around the window to move it. Press the Option key to make a single copy. Then drag the original over the copy. Notice that you can see through the original to the copy.

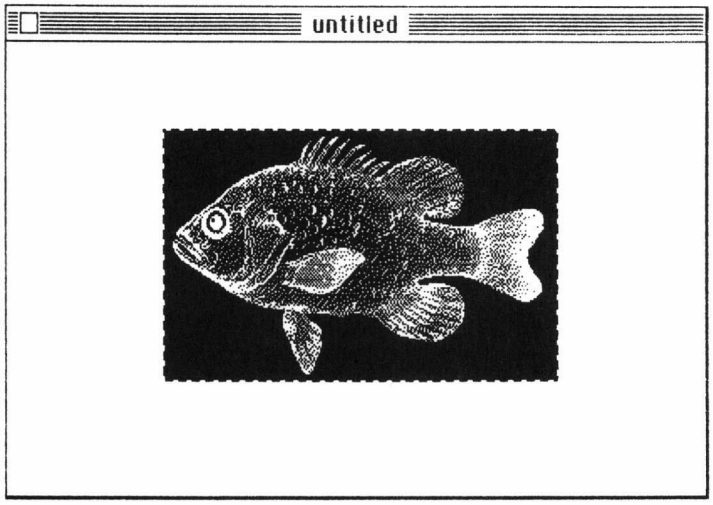
Repeating copies of text, made by holding the Option and Command keys while dragging the selected text with the lasso, also show through one another. Create repeating copies of Stretch in the usual way, making sure you drag copies over one another at several points. No matter how dense the cluster of copies, you can always see through to the copy underneath. Again, use the border palette lines to set the space between repeating copies.

Advanced Editing with the Marquee

The final set of editing commands comprises the six options listed at the end of the Edit menu in the menu bar. These commands—Invert, Fill, Trace Edges, Flip Horizontal, Flip Vertical, and Rotate—perform sophisticated operations upon the selected item. Aside from Invert and Fill, which are available for use with both the lasso and the selection rectangle, these commands are only available when using the marquee for selection.

Invert is the most basic of these commands. With it you exchange all black pixels for white ones, and vice versa. As an example of Invert in action, clear your drawing window with a double-click on the eraser. Then paste the fish from the Clipboard into the window. Place a selection rectangle around the fish as before, by clicking outside of the

blinking fish and dragging the marquee over it. Once selected, slide the pointer to the Edit menu and choose Invert. Instantly, the fish becomes white against a black background, as if it were a film negative. Select Invert again to undo the effect.



Invert, selected from the Edit menu.

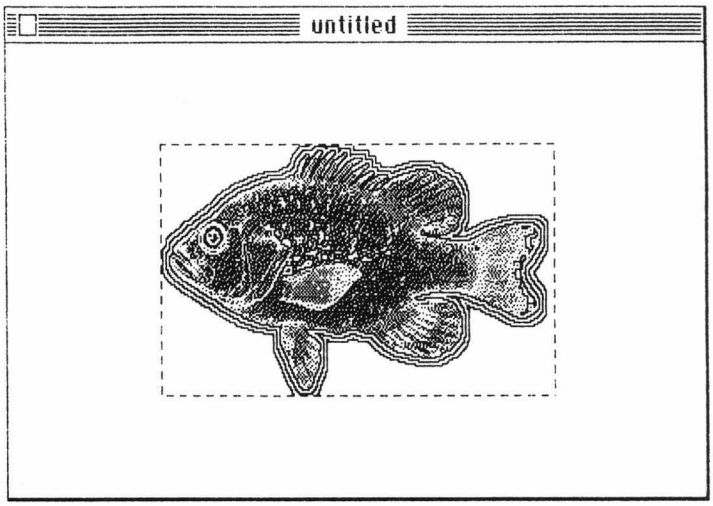
Fill

The Fill command is unique to version 1.3 of MacPaint and does not appear in any form on the earlier version of MacPaint. Fill lets you select an area with the lasso or marquee, select a pattern from the pattern palette, and then fill the entire selected area with the new pattern. With Fill you can paint over large areas of existing patterns, unlike the paint bucket, which only fills a cleanly bounded area of a MacPaint document. The Fill command is especially useful for quickly replacing areas of a drawing with a new pattern. Of course, you can use Undo with Fill if you make a mistake.

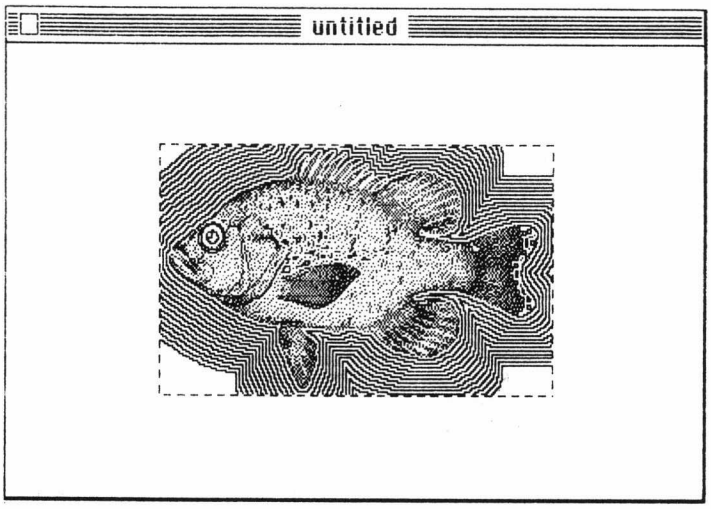
Edging On

Trace Edges is the only selection command that is also available as a keystroke on the Macintosh keyboard. Pressing <Command-E> selects Trace Edges as does its more conventional bar in the Edit menu. The keystroke version of Trace Edges is especially convenient when you want to perform multiple tracings without having to use the mouse and bring the pull-down Edit menu onto the screen, possibly covering your selected item. Trace Edges performs something of an Invert while outlining the edges of the selected item with an identical border. Repeated executions of Trace Edges—a simple matter of holding down the <Command-E> combination—continue to outline the previous outline, building something akin to a topographical map, which uses curved bands to indicate differences in height.

Larger, more elaborate patterns may be created with Trace Edges by enlarging the selection rectangle surrounding the selected item.



Trace Edges executed five times.

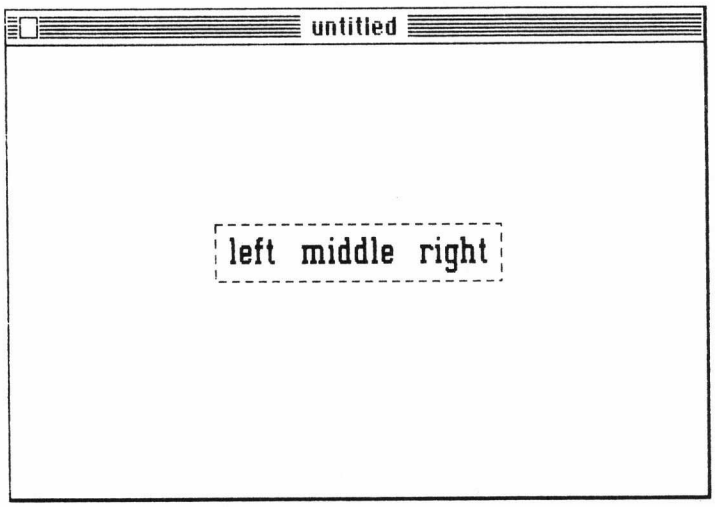


Trace Edges executed twenty-five times.

Editing Orientation

The final three selection editing commands available through the selection rectangle allow you to reorient selected items horizontally, making what faces right face left; vertically, exchanging top and bottom; and reorient through four rotations in 90 degree increments.

The flipping commands, Flip Horizontal and Flip Vertical, reorient both up and down, right and left. Clear off your window and select the text icon, A, from the tool palette. Change the text setting to 18 point plain Athens from the Font, FontSize, and Style menus. Go to the middle of your cleared window and type the three words "left middle right" leaving two or three blank spaces between each word. Now go to the tool palette and select the marquee. Drag a selection rectangle over these three words on the window.

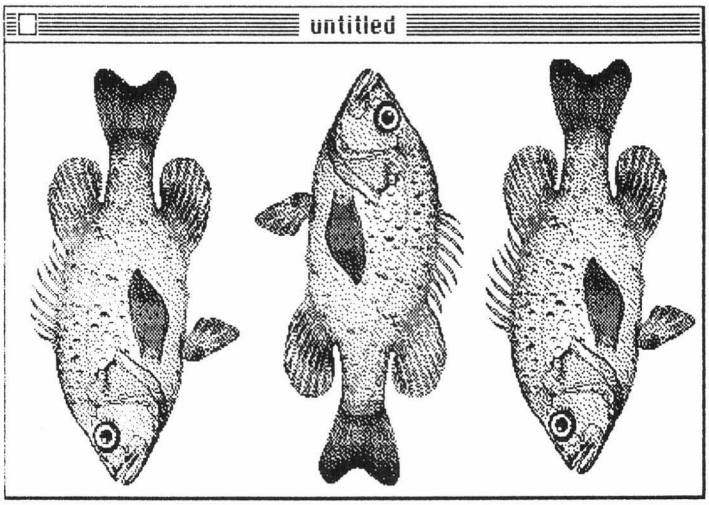


Selected text for editing orientation.

Go to the Edit menu and select Flip Horizontal. This makes the mirror image of the phrase. Select Flip Horizontal to "right" the text. Now select Flip Vertical from the Edit menu. Notice this makes an upside-down mirror image. Undo or Flip Vertical again to right the text. Now select Flip Horizontal, then immediately select Flip Vertical. This combination produces upside-down text that is readable if you crane your neck slightly. Undo or executing both Flip commands back to back rights the text. Of course, you can apply these rotation commands just as easily to selected pictures.

The final orientation command, Rotate, shifts the selected items in 90 degree increments. The first rotation swings the left edge of the selection rectangle to the bottom of the screen while the right edge swings to the top. The second rotation makes the selected items read upside down. This is the exact same effect as executing Flip Horizontal and Flip Vertical one right after the other. A third rotation swings the right edge (of the upside-down image) to the top while pushing the left edge to the bottom. A fourth rotation completes the circle and rights the selected item. Using combinations of the two Flip commands with the first and third rotations produces a mirror image, and left-to-right-reading text in a vertical direction.

The selection rectangle, or marquee, along with its unique Edit menu commands, lets you create an array of different and interesting orientations that can be used to illustrate two sides of an object, its top and bottom, or a variety of special features. And at any point in the reorienting process, you may copy, move, repeat copy, stretch, etc., your selected item. Imagine stretching an upside-down mirror image of the fish or robot. The MacPaint looking glass gives you that opportunity.



Fish copied and rotated with Edit menu commands.

Selecting to the Clipboard

Anything you select with the selection rectangle or the lasso can be copied or cut to the Clipboard for use elsewhere in a MacPaint document or for pasting into the Scrapbook. Using the lasso and marquee is the equivalent of dragging the I-beam over text to select it.

Advanced MacPaint Features

In addition to the many terrific MacPaint tools you've already worked with, there are a few remaining tools and techniques you can use to hone and refine your work. Are there jagged edges you can't erase with the eraser? Or do you want to make a perfectly straight line with the paintbrush? Perhaps you want to flip back and forth between the drawing window and the full-page representation of your MacPaint document. MacPaint provides these features.

Expanding the Workspace

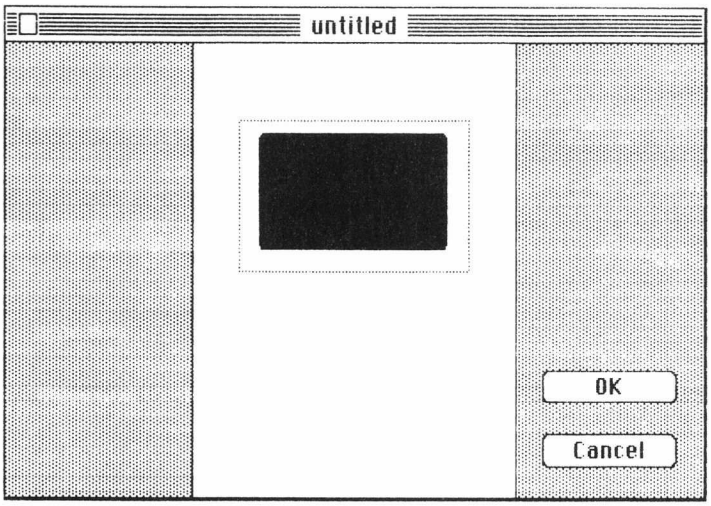
For simplicity's sake, throughout this entire MacPaint chapter you've worked exclusively in the drawing window. Now you're ready to explore the rest of the drawing page.

Displaying a full page is simply a matter of sliding the pointer to the Goodies menu and selecting Show Page. Clear off your drawing window first by double-clicking the eraser, if you have any clutter. Then select Show Page from the Goodies menu.

The familiar white expanse of the drawing window will instantly change into a new window with a large vertical rectangle surrounded by a gray background. Inside the large rectangle is a smaller, dotted rectangle that is similar to the marquee. As you've undoubtedly guessed, the large rectangle represents the entire 8" x 10" page while the dotted rectangle represents the position of the drawing window on the full page. The two buttons on the lower right side of the Show Page window let you cancel any action or confirm any change. Clicking on either one returns you to the drawing window.

Since you don't have anything in the drawing window, click Cancel to quit the Show Page window. At the drawing window, select the filled, rounded rectangle shape and then select the desktop gray pattern from the pattern palette. Drag a rounded rectangle across the drawing window so that it fills up most of the window's space. Leave at least a half inch between the windowframe and the edge of the filled shape. This item in the drawing window gives us perspective when we look at

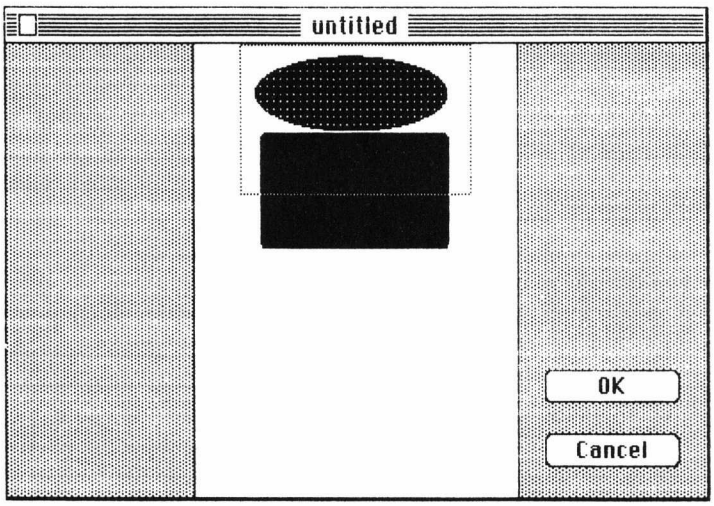
the full page using Show Page. To return to Show Page, either select it from the Goodies menu as before or double-click on the grabber hand icon in the tool palette.



Move the dotted rectangle to reposition the MacPaint document window. Click the OK button to confirm your changes. Click the Cancel button to ignore your changes.

When the Show Page window returns, you see a representation of your rectangle sitting within the dotted rectangle that marks off the drawing window. Your rectangle is sitting slightly above the middle of the full 8″ x 10″ page. To move to another part of the current MacPaint document, you can drag the dotted rectangle in the Show Page window to the place on the page you want to work on next. For the sake of illustration, let's say you want to place a small filled ellipse above the rounded rectangle. To get at that part of the page, place the arrow pointer inside the dotted rectangle and drag the rectangle by holding down the mouse button as you slide the pointer up to the top of the page. Release the mouse button when the top edges of the dotted rectangle and the page meet. Confirm your change by clicking the OK button.

When you return to the drawing window, the rounded rectangle occupies the bottom third of the drawing window. The bulk of the window is clean, white space. Go to the tool palette and select the filled ellipse shape. Select the graph paper pattern from the middle of the bottom row of the pattern palette. Now stretch an ellipse across the top of the window. Go back to the tool palette and double-click on the grabber to execute Show Page.



Moving the drawing window inside Show Page.

Not surprisingly, the dotted rectangle is filled with the new ellipse and the top of the rounded rectangle. As you can see, filling the page is simply a matter of moving the dotted rectangle in Show Page to the new part of the page you want to use. To draw on the very bottom of the page, position the pointer within the dotted rectangle and drag it to the bottom of the page. Drag the dotted rectangle to the edge of the page to draw there.

Moving the work you've already completed to another place on the page is easily accomplished by using the mouse to drag to the new location. In the process, you don't change the position of the drawing window. Of course, you can go back to it if you want and drag it to another position too.

Shifting the whole picture on the page is done by positioning the arrow pointer anywhere *outside* the dotted rectangle and then dragging the items on the page to their new location. If you want to place the rounded rectangle and ellipse at the bottom of the page, drag them there with the mouse. Notice that the position of the dotted rectangle (the drawing window) remains unchanged. You can even drag the items on the page partially or completely off the vertical edges of the page. Dragging them partially off truncates the image along the edge, while dragging anything completely off the page is a shortcut for erasing it. This method of erasing is crucial if you find yourself having to delete all or most of an entire page. Without this feature, erasing the whole page would require that you double-click on the eraser to erase the drawing window, go into Show Page, move the drawing window, return to the drawing window, and double-click the eraser again. Clearing the entire page requires six separate repositionings of the drawing window through Show Page. (If you really have to clear off an entire page, another method is to simply close the current document without saving any of its changes. Then open a new file with New from the File menu.)

Looking at the Details

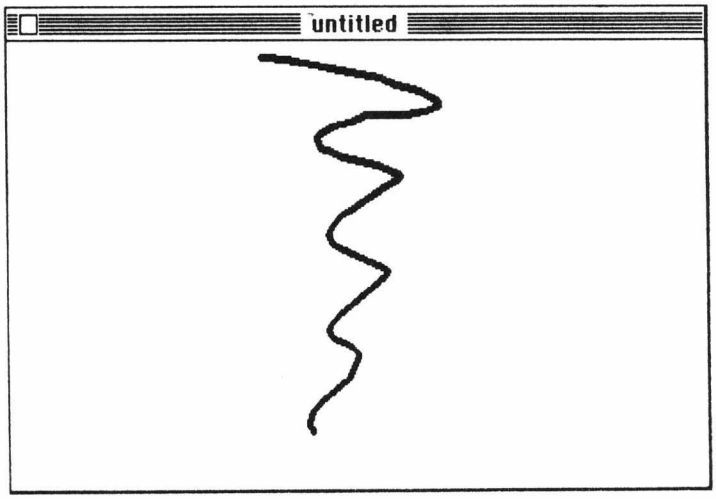
If you think back to the beginning of this section on MacPaint, you'll remember that the quality of display in MacPaint is a function of screen resolution. Circles can't be perfect in MacPaint because there simply aren't enough pixels to give the appearance of a smooth curve. You encountered this problem several times, most notably with the ellipses and with freeform lines made with the pencil and paintbrush.

MacPaint can't change the resolution of the Macintosh screen, but it does give you the ability to go into the drawing window and work pixel by pixel, thereby allowing you to clean up and add details at the most fundamental level in the MacPaint drawing windows.

MacPaint's tool for editing at the pixel level is FatBits, which resides in the Goodies menu. Though you can choose FatBits from the Goodies menu, you're developing a library of MacPaint shortcuts, so it makes sense to introduce the FatBits shortcut at the outset and leave the formal method for the reference books. FatBits is easiest to use by

double-clicking on the pencil icon in the tool palette. Before you do this, though, clean off your screen with another shortcut that we've used throughout this entire chapter: a double-click on the eraser.

Select the paintbrush from the tool palette and make sure the black pattern in the pattern palette is selected. Draw a zigzagging line down the middle of the drawing window with the paintbrush.

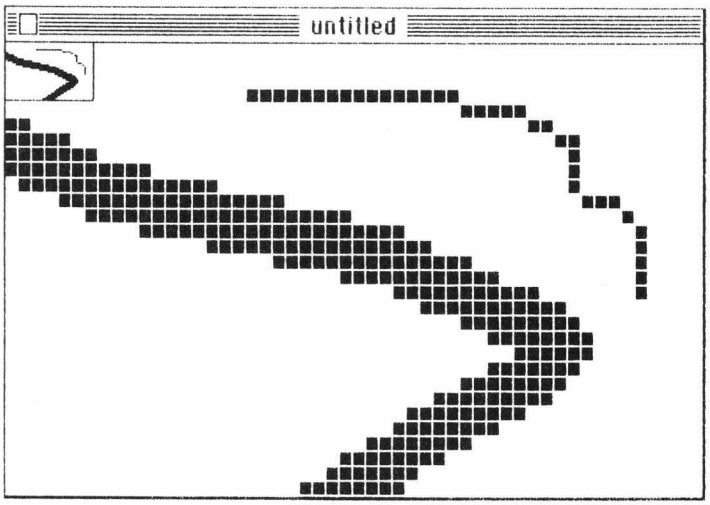


Draw a zigzag line with the paintbrush.

There are several ways to select the segment of this picture that you want to look at under FatBits. The *MacPaint* reference manual recommends using the selection rectangle or the lasso to select the area. Unfortunately, the manual then tells you to select FatBits from the Goodies menu. While this does bring you into FatBits, it also means you have to go back to the tool palette and select the pencil before you can edit pixels. (You can, however, use the selection tools in conjunction with the Option and Command keys in FatBits.) A faster, more direct method is to use the marquee to select the area and then double-click on the pencil to enter FatBits. When you enter FatBits in this manner, you have the pencil at your disposal instantly.

After drawing your line with the paintbrush, select the marquee and select a small elbow or bend in your line. Drag the selection rectangle across the area and place it by releasing the mouse button. Go back to the tool palette and double-click on the pencil. The drawing window

instantly becomes a magnifying glass that enlarges the pixels that were selected with the marquee. In the upper left-hand corner of the window is a true-sized representation of the magnified area. Take the pencil and place its tip anywhere on the white area of the FatBits window. Now press and hold the mouse button and drag the pencil across the window. Watch as a single-pixel-wide line is drawn. Also notice that your line appears in the small box at the upper left.



FatBits magnifies MacPaint pictures to a pixel-by-pixel representation, letting you edit one pixel at a time for cleanup and detailed work. All tool palette tools work in FatBits.

To erase the line you just made, place the tip of the pencil on the first black pixel. Now carefully drag the pencil through all the black pixels of the line. Each one vanishes as it's touched. The pencil has always worked this way. Whenever it starts on a black pixel, it draws white, and whenever it starts on a white pixel, it draws black. In FatBits, as in the regular drawing window, this method is one way of both erasing unwanted stray bits and adding carefully chosen bits for highlighting effects or rounding corners.

Exiting FatBits can be done in a variety of ways. The easiest is to move the pencil into the small box in the upper left of the FatBits window and click once. This returns you to the regular drawing window. You can also go to the Goodies menu and select FatBits to exit.

Another way to get into FatBits and control the section you want to edit—without using the selection tools—utilizes a keystroke from the keyboard in conjunction with the mouse. Much as you used the Option key to make copies with the selection tools, you can press the Command key to automatically enter FatBits at the very point that the pencil tip is currently touching. For example, if you want to enter FatBits at the end of the zigzag, all you have to do is select the pencil, move its tip to the end of the line (without pressing the mouse button), press <Command>, and then click the mouse button. You can flip between the FatBits window and the drawing window by continuing to hold the Command key while you click on the mouse. Each click flips between windows.

Once you enter FatBits this way, you can scroll at the pixel level by selecting the grabber icon from the tool palette and dragging the image in the window as if you were moving a slide under a microscope. Release the mouse button when you want to work on a new area. Notice, as you scroll, the true-sized box in the upper left corner also scrolls through the image.

An even faster way to scroll with the grabber and edit with the pencil utilizes yet another keystroke in combination with a mouse action. Instead of going back and forth between the tool palette and FatBits window for the pencil and grabber, you can call the grabber by pressing the Option key and scroll by dragging the hand around the window. (You must have the pencil selected.) Before you even touch the mouse again, press and release the Option key a few times. The pencil in FatBits becomes the grabber hand in FatBits.

The combination of the pencil with the Command and Option keys lets you edit quickly and efficiently using FatBits. Select the pencil and move to the area you want to examine. Hold down the Command key and click once on the mouse button. Flip back and forth between normal viewing and FatBits by continuing to hold the Command key down as you click. Inside FatBits, press the Option key to turn the pencil into the grabber. Scroll through the pixels by dragging, and edit with the pencil.

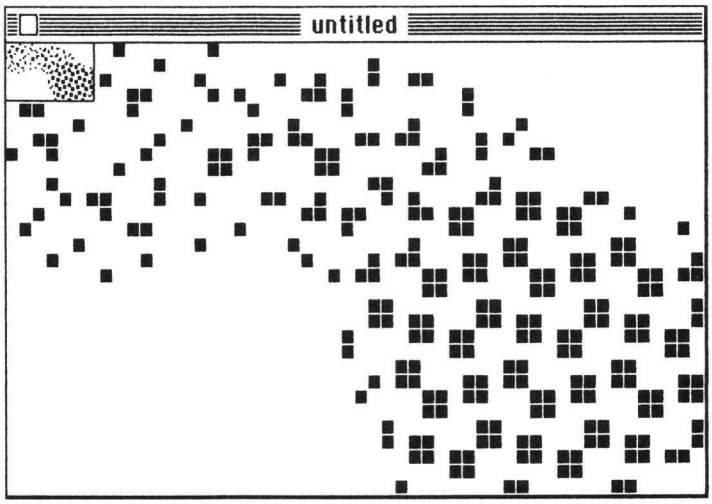
Using the Tool Palette in FatBits

You might say the pencil is the "native" tool for FatBits, but there might be occasions when you want to use another tool from the palette. MacPaint lets you use any tool from the tool palette while you're inside

FatBits. You can spray paint, use the paintbrush, make copies, etc. In short, anything you can do in the regular-sized drawing window, you can do in FatBits. Of course, you have to take into account the space limitations in FatBits. Filling an area with a pattern looks entirely different in FatBits, as does erasing, spray painting, adding text, etc.

Clear off the drawing window with a double-click on the eraser, then enter FatBits by double-clicking the pencil. Select the filled ellipse from the tool palette. Also select the pebble pattern from the middle of the top row of the pattern palette. Place the cross hair into the FatBits window and slowly drag an ellipse across it. Place the ellipse by releasing the mouse button. In both the real-sized window and the FatBits window, the filled ellipse is visible. In the real-sized window the ellipse looks relatively smooth. Magnified under FatBits, the ellipse is grainy, with short, straight lines approximating curves. Notice the pebble pattern is also made with clusters of pixels.

Clear the FatBits window by double-clicking the eraser. Next, select the spray can from the tool palette while leaving the pebbly pattern selected. Bring the spray cluster onto the FatBits window and spray by dragging the cluster back and forth over the same area a few times. Now watch as the can actually adds pixels as it sprays to complete the pattern design. This is how the shading effect works. Each pass with the spray can only drops a small percentage of the total pixels for a given pattern. Repeated passes add the missing pixels.



Spray can pattern in FatBits.

Truly Straight Lines and Smooth Curves

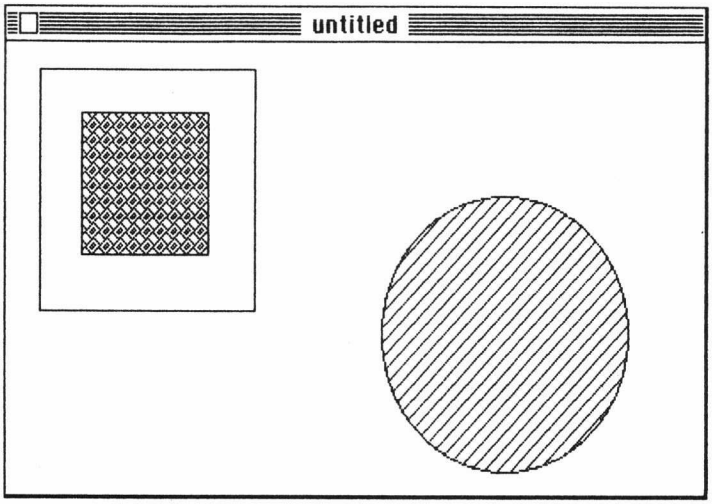
Now that you've seen and used FatBits, you probably have a clearer understanding of the limits of the Macintosh's screen resolution. Another hundred thousand pixels might be just the ticket for making smooth curves and straight lines. Unfortunately, the expense of such a machine is prohibitive. Maybe a Macintosh 2 will come out with just such an addition. For now, you have to content yourself with a mere 175,104 pixels.

A feature MacPaint offers to help overcome the resolution problem with straight lines and rounded shapes is called constraining. Constraining uses a keystroke in conjunction with the mouse to restrict lines made with the ray, pencil, and paintbrush, so that you can only draw them in the vertical or horizontal directions. The ray does allow one in-between option—you can make forty-five degree angles. Constraining shapes works similarly, turning ellipses into circles and rectangles into squares.

Constraining may also be used with the spray can to restrict its pattern to the vertical or horizontal direction. You can constrain the eraser to the same end. The hollow and filled polygons can also be constrained to 45 and 90-degree angles. Even the selection tools, the lasso and the selection rectangle can be constrained so that movement of selected items can be done either vertically or horizontally. Likewise, copies and repeating copies can be constrained by pressing the Shift key in conjunction with the Option or Command key. When using Show Page, pressing <Shift> constrains the movement of the dotted rectangle to the vertical and horizontal directions.

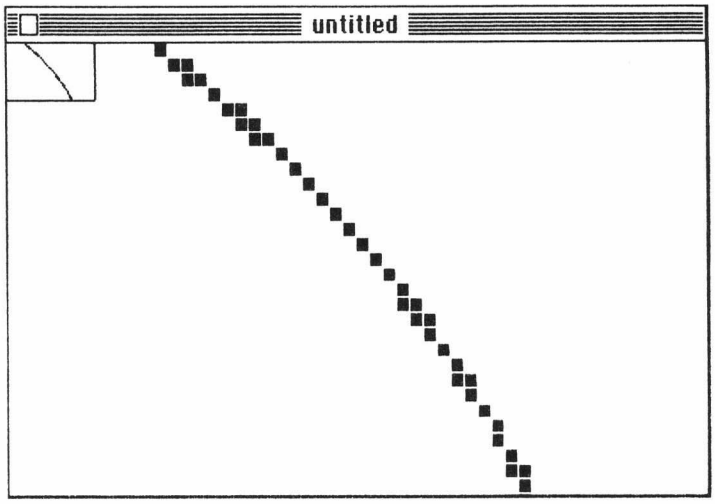
To try constraining, exit FatBits and clear the drawing window, then select the hollow rectangle icon from the tool palette and bring the cross hair onto the screen. Press the Shift key while you drag the cross hair down and to the right. The resulting rectangle is always a square, no matter what size it is. Select the filled ellipse icon in the tool palette.

Move the cross hair back onto the drawing window and press the Shift key while you drag the image of the circle down on the window. Again, as with the square, at any size, constraining the ellipse produces a circle.



Holding down the Shift key while using both the hollow and filled rectangles and ellipses draws perfect squares and circles.

Since constraining finds the best pattern for the pixels on the screen, constrained lines and shapes are generally good models for seeing how square pixels can make rounded lines. The best way to view this, of course, is through FatBits. Select the pencil and position it anywhere along the border of the filled circle you just made. Place the tip of the pencil on the very edge of the border and press the Command key just before you click the mouse button. Notice that the pixels along the edge are more regular than in freeform drawing. Scroll around the perimeter of the circle by pressing the Option key and then dragging the image through the FatBits window. Notice the very bottom, top, left and right sides of the circle are not smooth curves, but are segments of straight lines, while the rest of the circle's perimeter is more evenly stepped with one or two pixels at a time.



Magnifying the edge of a circle made by constraining displays the uniform distribution of pixels.

Another Constraint

There is one last constraint in MacPaint that works differently than constraining lines and shapes. This constraint, called Grid, is only available from the Goodies menu. Invoking Grid places an invisible grid, much like a piece of graph paper, onto the drawing window. Everything you place in the window will then be queued along the lines of the invisible grid lines. When you add text to a MacPaint document, this feature ensures that it's lined up either horizontally or vertically, or both. Grid is a very useful feature for designing invitations, reports, logos, etc.

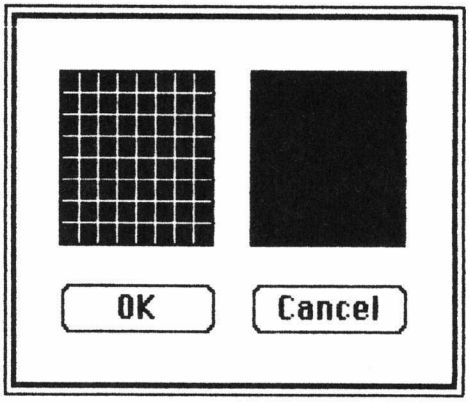
To get a feel for what you can do with Grid, exit FatBits and clear the drawing window and select Grid from the Goodies menu, then select the text icon from the tool palette. Move the I-beam pointer into the drawing window and slide it around without pressing the mouse button. Notice each movement causes the I-beam to jump in discrete increments. Without Grid, the movement of the I-beam would be continuous.

Select some other tools from the tool palette and see how their pointers respond to Grid. Grid does not affect the paintbrush, paint can, pencil, or spray can. It does, however, affect the hollow and filled shapes. Selecting Grid in the Goodies menu a second time turns it off.

Editing Patterns

Another one of MacPaint's miracle features is the ability to edit the patterns used for painting, spraying, filling, etc. If one of the thirty-eight doesn't strike you as appropriate for the work you're doing, then you can call up Edit Pattern from the Goodies menu and design your own, using the technique you learned in FatBits for editing pixels.

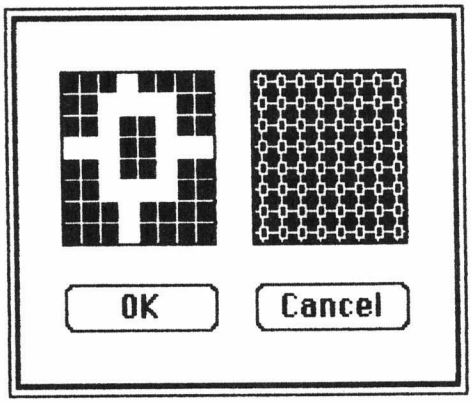
There are two ways to edit a pattern. The formal way requires that you select the pattern from the palette and then select Edit Pattern from the Goodies menu. We'll use this method for now. Make sure the black pattern is selected in the pattern palette and then select Edit Pattern from the Goodies menu. The editing window that quickly appears on your screen shows the current pattern in its regular form on the right side and in its FatBits form on the left side. The two buttons, OK and Cancel, work like the buttons in the Show Page window: clicking OK confirms your changes, clicking Cancel ignores them.



The Edit Pattern box.

The FatBits representation of the current pattern is an eight-pixel by eight-pixel square. You edit the pattern by moving the arrow into the FatBits square and clicking on each pixel to turn it from white to black and vice versa. Though the arrow never changes into the pencil in Edit Pattern, it works in exactly the same fashion. Each editing change you make is recorded instantly in the true-sized square on the right, allowing you to view as you work.

Edit the pattern by clicking on one of the pixels. Notice the accompanying change in the right square. Keep editing; you can dump your changes by clicking Cancel when you're through.



Customizing a pattern is simply a matter of dragging the arrow over the FatBits enlargement of the pattern. The resulting pattern is immediately displayed on the right.

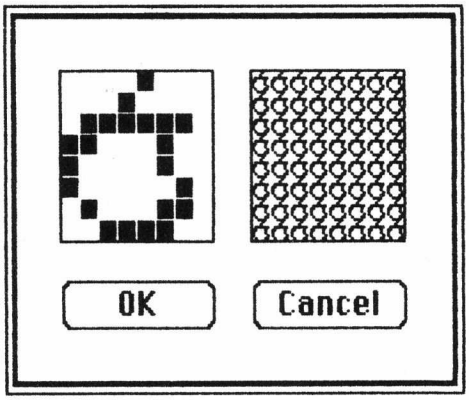
After you've experimented a bit, cancel your editing. This will send you back to the regular drawing window. An important feature of Edit Pattern to remember is that whenever you change a pattern and save a document that uses the pattern, the edited pattern is saved along with that particular document, and that document only. This lets you go back to the picture another time and make changes without having to recreate the unique pattern. No matter how many patterns you edit and save with various MacPaint documents, every time you open a new, untitled MacPaint document, the familiar thirty-eight patterns always appear. Don't be afraid that editing will cause you to lose a pattern. It won't. The default patterns are stored permanently in MacPaint.

Painting with Apples

As an example of the patterns you can create with Edit Pattern, let's make one that is composed of the Apple logo. Since we only have sixty-four pixels in which to design the entire image, the logo will be an approximation at best. Still, this will give you the flavor of Edit Pattern.

Look at the black and white pattern that's second from the left on the bottom of the pattern palette. Instead of selecting this pattern and then selecting Edit Pattern from the Goodies menu, simply double-click on the pattern in the palette. This shortcut saves you two selections.

Clear out the few black pixels in the FatBits square by dragging through them with the arrow. Then go into the FatBits square and place pixels according to the following illustration.



The Apple logo pattern.

It's difficult to imagine that this ungainly arrangement of twenty-two pixels could represent the Apple logo, but one look at the right-hand square in the Edit Pattern window should convince you it does. Click the OK button in the window to save the pattern. Watch the new pattern appear in both the current pattern box of the pattern palette and in the palette box formerly occupied by the black and white dots. This means the pattern is stored and you can use it like any other pattern in MacPaint.

Once saved, go to the tool palette and select the paint can. Move the can into the drawing window and click once to fill the entire window with this new pattern. You can go on to fill shapes with this pattern, spray paint with it, etc. As you can see, the power of Edit Pattern may take you years to exploit. For now, it's ready and waiting for you to create that personal design for your work.

Whereto with MacPaint?

That's it for MacPaint's techniques. From now on it's up to you to supply the imagination, but the array of techniques and features of this application should give you many ideas for making a host of interesting illustrations for reports, books (MacPaint created every illustration in this book), or personal announcements and invitations.

Leaving MacPaint for the Desktop

Unless you plan to experiment some more on your own, it's time to exit MacPaint. To get back to the desktop Finder, the place from which you opened MacPaint, select Quit from the File menu. Click the No button when asked if you want to save any changes. After a few seconds you'll be back at the desktop. Once there, you'll take a few minutes to learn some features of the desktop that you haven't needed until now. Though you saved one document (Border Widths) to Work Disk 1, you saved a copy of the robot and the fish to the Write-Paint disk. The next brief section shows you how to recognize a MacPaint document icon and how to transfer it to Work Disk 1 from the desktop.

Cleaning Up After MacPaint Desktop Chores

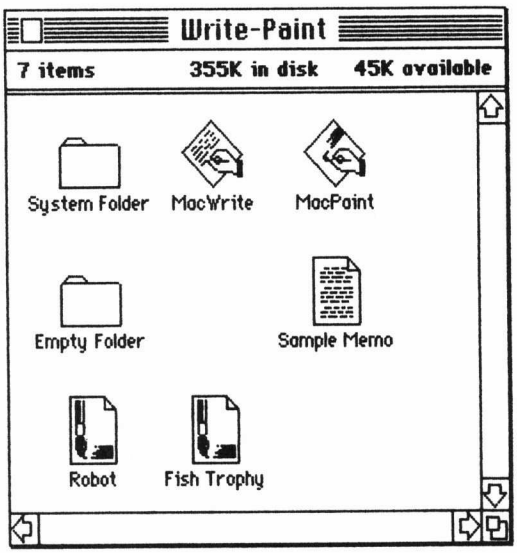
After closing MacPaint, the Macintosh spends a few moments cleaning house by making sure any open files are closed and then reloading the desktop Finder into the random access memory. Once you've returned to the desktop, the window for Write-Paint is open on the screen. Whenever you open an application from a window, the window remains open while you work. Since you opened MacPaint from the Write-Paint disk window, that window appears on the desktop after closing MacPaint. If you had opened MacPaint from inside a folder, then the window for that folder would be the active one on the desktop.

The Macintosh Finder handles the windows in this fashion because it lets you start exactly where you left off on the desktop after you close an application. All open windows, regardless of content, are preserved and redisplayed.

Working with Documents

In the previous section, you saved one document to the data disk—Work Disk 1—you made in Chapter 2. This document, Border Widths, was an example of saving a MacPaint file to disk from within the application itself. You also saved two other documents—Robot and Fish Trophy—onto the Write-Paint disk. (If you didn't have a copy of the fish, you probably named your document something else.) Take a look in the Write-Paint window on the desktop. If you haven't saved other documents to the disk, then there should be seven items, including the MacPaint documents Robot and Fish Trophy. If you don't see the Robot or Fish Trophy document icons immediately, use the scroll bars on the sides and bottom of the window to search.

Once you've found them, notice that they are distinguished easily from the other document and application icons by the picture of the paintbrush. If Sample Memo, the MacWrite document that comes as part of the Write-Paint disk, is visible, note that it, too, is distinguished from the other icons by its typewritten appearance. All document icons created by various Macintosh applications are unique. This helps you to organize your documents. It also helps when you make a quick visual inspection of a crowded window to tell just what kind of documents are present, without having to read through their names.



MacPaint document icons always sport the brush stroke for identification.

Copying Documents Into Folders and From Disk to Disk

Since you ultimately want to store all your MacPaint and MacWrite documents on the data disks, you should become familiar with copying documents from disk to disk. There will be times when you just don't want to swap disks to save the one-page letter you're typing with MacWrite and you save it to Write-Paint to make life easier. Small documents don't usually cause problems when they're saved onto Write-Paint, unless, of course, there are too many such documents. As mentioned before, saving larger documents, especially MacPaint documents, to Write-Paint can be frustrating if the Macintosh decides that you must clear off unwanted files. That's why you are encouraged to use data disks for all your storage.

The MacPaint Robot and Fish Trophy documents are relatively small. To see just how much room they occupy on Write-Paint, select both icons by dragging the desktop selection rectangle over them or by

Shift-clicking. Then choose Get Info from the File menu. The information contained in this window includes the size of the document. If you followed the instructions for making the Robot document, it should occupy in the neighborhood of 6K, or six thousand bytes, on the Write-Paint disk. For such a small picture, it certainly requires quite a bit of storage. Imagine if you filled an entire 8″ x 10″ page with an image. A document like this can occupy between 20 and 30K worth of disk space.

To transfer the Robot and Fish Trophy documents to Work Disk 1, you have to remove Write-Paint from the disk drive. Go to the File menu and choose Eject. If the Eject command is dimmed in the File menu, then the Write-Paint disk icon is not selected. Move the arrow to it and click the mouse button. Now execute Eject. You can leave the Write-Paint window open when you eject the disk.

Notice the icons in the Write-Paint window dim when the disk is removed. This lets you know the disk is not currently in the drive. You can, however, work with the window and the icons as if the disk were in the drive.

Get out your data disk, Work Disk 1, and insert it into the Macintosh disk drive. Once the machine accepts the disk and its icon becomes selected, double-click on it with the pointer to open its window. If this window covers the Write-Paint window, simply drag it from the title bar to a free spot on the screen. Examine the contents of Work Disk 1. You should see the Empty Folder and the MacPaint document you saved, Border Widths.

Now is a good time to start organizing your work disk. As you continue to use it, it can become very cluttered if all the documents fill the window. You should remember from the first chapter that a preferred method of organizing documents is using folders arranged in the tree. There aren't enough documents on the data disk yet to warrant setting up a folder tree, but it is a good time to set up folders for your MacPaint and MacWrite documents.

Select the Empty Folder icon in the Work Disk 1 window. Go to the File menu and select the Duplicate command. Remember this makes an exact copy of whatever is selected at the time. Take the new folder, called Copy of Empty Folder, and drag it to a free space in the Work Disk 1 window. If you have to, resize the window using the size box at the lower right-hand corner of the window. Rename this new folder Art

Folder simply by typing in the name through the keyboard. Use the Backspace key to correct any errors. Once the new name is typed, click anywhere on the screen to save the name with the folder. Not surprisingly, this folder will hold all the MacPaint documents you create. If you like, you can set up a tree network inside this folder by copying the Empty Folder and dragging the copies into the Art Folder.

While you're setting up a MacPaint document folder, you may as well set up a MacWrite document folder. The process is the same. Duplicate the Empty Folder in the Work Disk 1 window and rename it Writing Folder. Click anywhere on the screen to record the name change. Use the Writing Folder to keep MacWrite documents separate from MacPaint documents.

Putting the MacPaint document into the Art Folder is simply a matter of dragging the icon over the top of the Art Folder and releasing the mouse button. All documents, applications, and folders are placed into folders this way. Select the Border Widths icon and drag it so that it covers the Art Folder completely. Notice that the Art Folder icon becomes selected when you position the document icon over it. Release the mouse button and the Border Widths icon vanishes. Look at the line under the Work Disk 1 title bar. It now shows one less item in the window. The Border Widths document hasn't been lost. It has been nested within the Art Folder.

To convince yourself that the Border Widths documents is indeed within the MacPaint Art Folder, double-click on the Art Folder to open its window. Resize the window if you have to, and look at its contents: Border Widths. The title bar of the Art Folder window reads 1 item.

The last thing left to do is to copy Robot and Fish Trophy from the Write-Paint disk into the Art Folder in Work Disk 1. Not surprisingly, the same techniques you just employed to copy from the disk window to the folder also apply to copying between disks. Select the icon you want to move and drag it either to the icon for the disk on which you want to place it, or directly into the open window of the disk or folder in which you want to place it.

Since you're working with windows, you'll drag the Robot and Fish Trophy icons directly into the Art Folder from the Write-Paint window. Clean up your screen so that only the Write-Paint window and the Work Disk 1 windows are open. Move the pointer to the Write-Paint window and select the Robot and Fish Trophy icons. Drag them to the Art Folder

and release the mouse button when the Art Folder is covered and selected by the two icons. After the disk drive hums a few seconds, a dialog box like the ones you saw when you made backup copies of disks appears. It asks you to insert Write-Paint into the drive. Do so. Follow the prompts for inserting Work Disk 1 and Write-Paint. As long as you follow the Macintosh's instructions, you can't go wrong.

Once the dialog box disappears, signifying the end of the copying process, you will probably have Write-Paint in the drive. That's fine, because you'll need to use it in a second. To confirm that a copy of Robot and Fish Trophy is in the Art Folder, double-click on the Art Folder to open its window. Sure enough, Robot and Fish Trophy are right beside Border Widths. Close this window by clicking in its close box. The Work Disk 1 window should have three items listed: Empty Folder, Art Folder, and Writing Folder. Close the Work Disk 1 disk window by clicking in its close box. Insert the Write-Paint disk into the drive, if necessary, using the <Command-Shift-1> keystroke to eject the disk currently in the internal drive.

Back in the Write-Paint window you still see the Robot and Fish Trophy document icons. It might seem strange to you that documents you copied from Write-Paint to Work Disk 1 still appear in their original location. After all, the goal was to remove them from Write-Paint and to store them on the data disk. They have been stored on the data disk. The Art Folder window proved that. One of the safeguards built into the Macintosh Finder (and into most personal computer operating systems) retains a copy of the document or documents you are moving. After you have successfully copied your documents to their destination, you must go back to the original documents and remove them by placing them in the Trash.

To place the expendable copies of Robot and Fish Trophy into the Trash, simply drag them from the disk window over the top of the trash can icon. Release the mouse button when the Trash becomes selected. Instantly, the Robot and Fish Trophy documents vanish. Open the Trash by double-clicking on it to see that the two documents have been placed there. Close the Trash. When you open a new application or eject the Write-Paint disk, the Trash is automatically emptied. You can, if you want, choose the Empty Trash command from the Special menu. This empties whatever is in the Trash immediately.

Two Disk Drive Option

Copying the Robot and Fish Trophy documents to Work Disk 1 is very simple if you have the external disk drive attached to your Macintosh. Insert Work Disk 1 into the external drive and open its disk window from the desktop. Make the Art and Writing folders by duplicating and renaming the Copy of Empty Folder icon, then drag Border Widths into the Art Folder. Open the Write-Paint disk window and drag both the Robot and Fish Trophy icons to the Art Folder and release the mouse button. They will copy to the data disk automatically. Follow the instructions in the preceding paragraph for removing the two MacPaint documents from the Write-Paint disk.

Backing Up Work Disk 1

The last thing you have to do before entering MacWrite is to make a copy of the documents on Work Disk 1. If you followed the data disk instructions closely in Chapter 1, then you made two data disks named Work Disk 1 and Work Disk 2. If you happened to name them something else, that's okay. Just remember to keep track of the disks you are using for storing your documents.

To ensure that all your documents are safely stored out of harm's way, it pays to make two separate copies of the data disks that hold your work. This guarantees that you will always have two copies of all your documents, in case one is erased accidentally or your disk is damaged. One storage disk is not enough. Work Disk 1 is for immediate storage from applications and Work Disk 2 is for backing up Work Disk 1. Only in a very rare instance do you want to use Work Disk 2 during an application. It's for deep storage.

To copy the documents and their folders from Work Disk 1 to Work Disk 2, you follow the same steps used above to copy between disks. Make sure to close all open windows on the desktop with Close All from the File menu. Remove the Write-Paint disk from the drive by selecting Eject from the File menu. Insert Work Disk 2 into the drive and open its window once the disk is in the computer. Unless you have placed something there, the disk's window should only display the Empty Folder icon. Move the pointer to the Work Disk 1 icon and double-click to open its window. If you need to resize the window to view the Work Disk 2 window, go ahead.

Go into the Work Disk 1 window and select the Art Folder. Drag this icon into the Work Disk 2 window and release the mouse button. A dialog box will ask you to insert Work Disk 1 while another dialog box tells you there are three files to copy. Insert Work Disk 1, then follow the Macintosh's prompts. When the copying is complete, you will have the Art Folder in the Work Disk 2 window. Copy the Writing Folder into Work Disk 2 as well. Even though there's nothing in it, you will need it later when you save MacWrite documents.

Two Drive Option

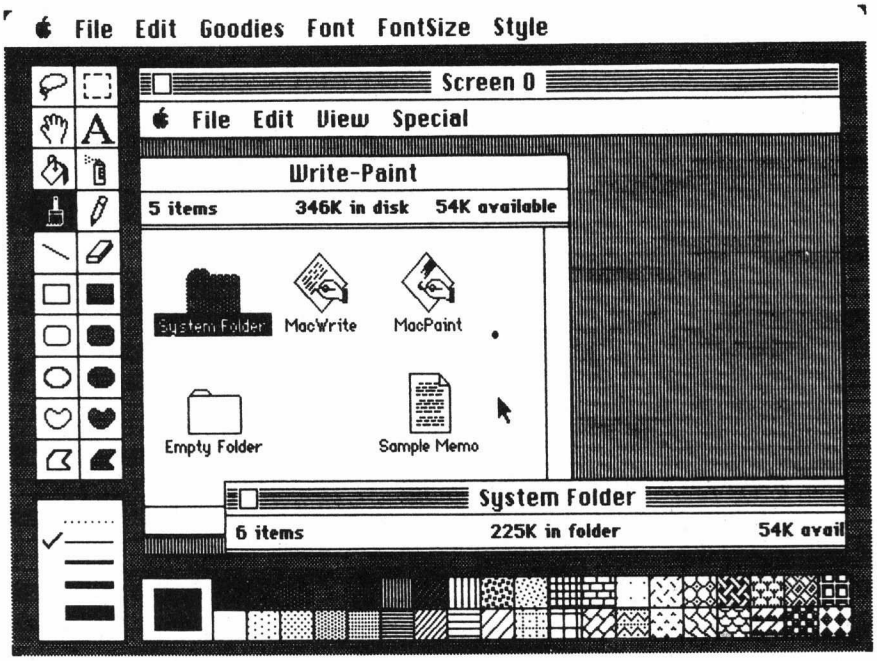
If you have the external drive attached to your Macintosh, close the Write-Paint disk window and remove the disk from the internal drive by pressing <Command-E>. Insert Work Disk 1 in one drive and Work Disk 2 in the other. Open the Work Disk 1 window and drag both the Art Folder and Writing Folder to the Work Disk 2 icon and release the mouse button. The folders and their contents will copy automatically to the second data disk.

Cleaning Off the Desktop

Once you have copied everything from between the data disks, close all the open windows on the desktop by selecting Close All from the File menu. Eject the current disk from the computer if it's not the Write-Paint disk. Insert Write-Paint into the drive. Now that you've successfully completed nearly two thirds of this book, it's time to reward yourself by relaxing with the puzzle from the Apple menu. It's the perfect desk accessory for times like this.

Some MacPaint Fun

If you're dying to work with MacPaint but don't have any clear-cut ideas on what you can do, put one of the Macintosh's more interesting features to work and create a MacPaint document out of the current contents of the Macintosh screen. Any screen, from the desktop or within an application, can have its "snapshot" taken and turned into a MacPaint document. Snapping the screen is as easy as holding down the Command and Shift keys and then pressing the number 3 key. You must release the mouse button for the snapshot to start. A beep from the Macintosh indicates the snapshot wasn't made. You can make up to ten snapshots in this fashion. The snapshots are automatically named Screen 0, Screen 1, Screen 2, continuing all the way up to Screen 9.



A MacPaint snapshot of any screen is made by holding down the Command and Shift keys and striking the number 3 on the keyboard. Snapshots may be edited like any MacPaint document.

Chapter 4
Writing with MacWrite

Writing will never be the same for you after you've used MacWrite. It's that different and that good. MacWrite is an entirely new concept in computer writing. Unlike most word processing programs, which are basically mechanical typewriters transferred to a computer screen, MacWrite breaks new ground by integrating the best features of word processors—the ability to move, delete, and edit on-screen—with the Macintosh technology of pull-down menus, windows, and of course, the mouse. In fact, MacWrite is one of the very few word processors available in which you can execute every single one of its commands without *ever* having to touch the keyboard. The combination of the Macintosh technology and the excellent features of MacWrite make MacWrite special in another way: MacWrite is as easy to use as a word processor can be. And no word processor can be made too easy to use. If you followed the discussion of MacPaint in the previous chapter, then you already know how to run most of MacWrite. If you're asked to execute a command from the Edit menu, you know how. If you're asked to select a chunk of text for deletion, you know how. In short, everything you've learned so far about the Macintosh and its applications applies to MacWrite. That's the beauty of the uniform environment.

Processing Words?

Before you jump headfirst into the world of MacWrite, a few words about writing with a computer are in order. First of all, don't let terms like word processing frighten you. Word processing is the 1980s way to say typing. Unfortunately, the term discourages some people from even learning about it. They figure you have to be a computer programmer to process words. Nothing could be further from the truth. In fact, word processors, which are programs, are used by a wide variety of people whose technical expertise ranges from screwing in a lightbulb to designing aircraft. No matter what you use your word processor for, be it writing papers in college, catching up on personal correspondence, or drafting legal briefs, you'll probably find your productivity improves.

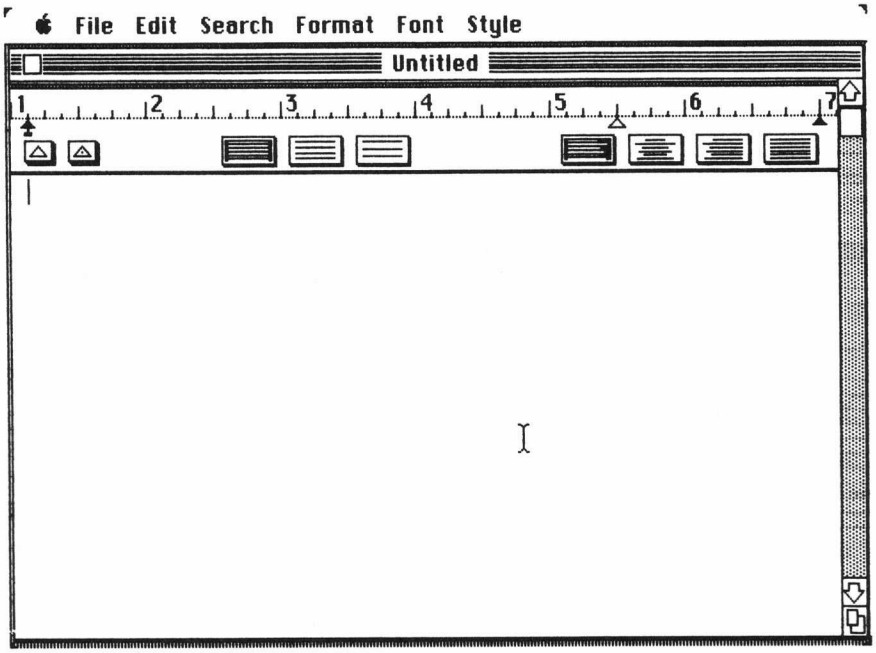
What makes a good word processor like MacWrite help you with your written work is the specific features you use to edit. You can instantly consign an awkward phrase or page to the electronic void with a simple tap on the Backspace key. Writing with a typewriter, on the other hand, binds you to permanence. Once you type something with ink, it's permanently affixed to the page. You can either ignore what you've written and go back to it later or stop what you're doing to correct your mistakes. The beauty of using a word processor is that every mistake and second thought you might have about your work can be edited instantly on the screen.

Differences Between Version 1.0 and 2.20 of MacWrite

The initial release of MacWrite that appeared with the introduction of the Macintosh was version 1.0. Since that time, MacWrite has been updated by its authors. The updated version, 2.20, is essentially the same as the original release with a few minor improvements and the welcome addition of a few new features (such as superscripts and subscripts). The discussion that follows in this chapter applies equally to both versions of MacWrite. Where significant differences occur, the commands from both versions are explained.

Learning to MacWrite

Opening MacWrite requires that you select and open its icon from the Write-Paint window. If your Macintosh desktop is crowded with open windows, close all but the disk window. Then double-click on the MacWrite application icon. The program takes about twenty seconds to load into the computer's memory. When it's completely loaded and the disk drive stops humming, you are at the opening screen of MacWrite.



The opening MacWrite screen. Untitled is the name of the new blank document. The bar at the top is the ruler used for setting the format of Macwrite documents.

Take a few moments to scan the screen, identify what is familiar, and note anything new. As you can see, the bulk of the screen is occupied with one large window named Untitled. Like the clean document MacPaint opens for you every time, Untitled in MacWrite lets you start a new document you can later save under another name. The rest of the Untitled window is familiar to you. There is a title bar, close box, size box

at the lower right-hand corner, and a vertical scroll bar along the right edge of the window. There is no horizontal scroll bar. Ignoring what's in the Untitled window for a moment, the only other part of the screen that's visible is the menu bar. There are seven menus listed: File, Edit, Search, Format, Font, Style, and the Apple menu. Among these menus, only Search and Format are new to you. As you will see in a moment, however, there are new commands, specific to MacWrite, inside even the familiar menus.

So far, there's absolutely nothing in MacWrite that you haven't seen and used on the desktop or in MacPaint. You're already familiar with menus and windows. Not to forget your constant Macintosh companion, the mouse, roll the pointer across the screen a few times to see how it responds to different areas on the screen. Notice that in the menu bar and title bar the pointer is the familiar arrow, signifying that it's ready to execute a command from a pull-down menu or drag the window around the screen. When the pointer is moved into the large white expanse of the Untitled window, it changes from the arrow into the I-beam. From your work on the desktop and in MacPaint, the I-beam signifies working with text. Throughout MacWrite, you will use the I-beam as your pointer within the document window to select text and place the insertion point for typing. This is exactly the same as writing and editing text within an information window on the desktop.

Looking in the Window

Now that you've examined all that is familiar on the MacWrite screen, it's time to look at the one item that is not: the ruler at the top of the Untitled window. This is the tool you will use throughout MacWrite documents to set the format of your work. With the ruler you can change or set the line spacing, text alignment, tabs, decimal tabs, margins, and paragraph indentation. Whenever you want to change some format feature, either at the beginning of a MacWrite document or anywhere in the middle, you simply insert one of these rulers and make your changes. You can insert as many rulers as you like within a MacWrite document, and can vary the format of every line if you so desire.

For now, before you begin learning commands, concentrate on getting the feel for typing into the computer. Notice the blinking vertical bar at the upper left of the Untitled window. That's the cursor or insertion

point—the place where your typing will begin. It's the same insertion point you used for adding text to MacPaint documents. Now type this sentence:

This is my very first MacWrite sentence.

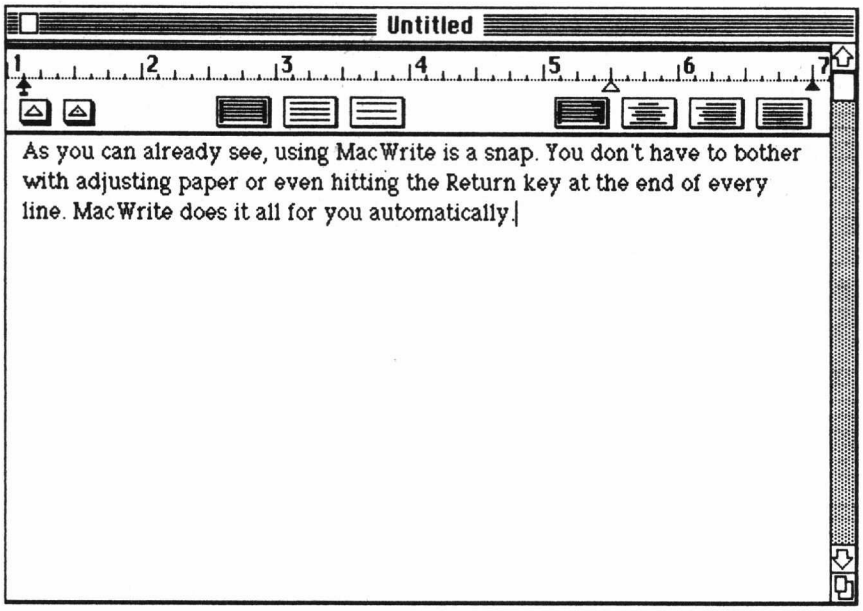
As you scan the text on the screen, notice that the default setting for text in MacWrite is the familiar 12 point Geneva plain (unless you are using version 1.0 of MacWrite in which case 12 point New York plain is the default text). Until you change this setting through the Font and Style menu, all text you type into MacWrite is in this form.

Now that you have successfully and painlessly typed a sentence into MacWrite, your next task is to erase everything you typed. Press and hold the Backspace key and watch your sentence vanish. At the end of the line, the blinking insertion point is all that's left. The Backspace key should be used for all routine deletions as you are typing. There are, of course, several ways to delete text in MacWrite, but the Backspace key is by far the easiest way to erase a stray character or two as you are typing in sentences. Note, too, that the Backspace key is a destructive backspace that does *not* place the deleted item onto the Clipboard. Like the text you edited on the desktop with the Backspace key, nothing is saved.

(There is a useful trick with the Backspace key that lets you recapture up to forty-eight characters of erased text. Simply press and hold the Command key and then press and hold the Backspace key. Any text erased with <Backspace> is automatically returned to the document window as the insertion point moves from left to right across the line.)

Go back to the keyboard and type the following lines. Make sure you do not hit <Return> when the text is about to touch the right-hand edge of the Untitled window.

As you can already see, using MacWrite is a snap. You don't have to bother with adjusting paper or even hitting the Return key at the end of every line. MacWrite does it all for you, automatically.


Untitled
As you can already see, using MacWrite is a snap. You don't have to bother with adjusting paper or even hitting the Return key at the end of every line. MacWrite does it all for you automatically.

Text is automatically added at the blinking insertion point.

As the words you type come close to the right-hand edge of the window, they jump down to the next line. This feature, which is common to virtually all word processors, is called word wraparound, or word wrap, for short. Unlike a typewriter, on which you must hit the Return key to advance to the next line, MacWrite always uses word wrap to automatically reformat your text according to the ruler settings you have made.

Many Happy Returns

The Return key on the Macintosh keyboard, however, is not rendered obsolete because of word wrap. Instead, <Return> is used to start a new paragraph by dropping the insertion point to the beginning of the

next line. To see how the Return key works in MacWrite, make sure the blinking insertion point is at the end of the phrase you just typed, then hit <Return> and type the following:

> **Hit the Return key when you want to make a new paragraph. <Return> Don't worry about hitting Return accidentally in the middle of a paragraph. MacWrite lets you clear out unwanted Returns with the press of a button.**
> **<Return> at the beginning of the second sentence means hit the Return key before typing the rest of the paragraph.**

Another feature of MacWrite's word wrap adjusts any additions you make to existing lines or paragraphs. Change the position of the blinking insertion point, moving the pointer into the MacWrite window so that it becomes the I-beam. Place the I-beam just before the H in Hit. Click the mouse button to drop the insertion point there. If you missed and placed the insertion point after the H, then simply move the I-beam and click again. To watch MacWrite's word wrap in action again, start typing the following phrase:

> **Making paragraphs is easy with MacWrite.**

After you type the period, end the phrase with a space. As you type, the sentence beginning "Hit the Return key" is not written over but is moved along the leading edge of the insertion point and is reformatted instantly into the body of the paragraph. This feature lets you insert text at any point in a document without ever having to make any adjustments. Some word processors allow you to select whether or not you will write over existing text. Most differentiate the two alternatives as Insert On or Insert Off. MacWrite always writes with its insert function on. You cannot defeat insert and overwrite text. This is a wise decision because it ensures that whatever you write cannot be lost by careless overtyping.

Undo & Redo

Like the Macintosh desktop and MacPaint, MacWrite gives you a way to change your mind if you've typed something that doesn't look quite right. You can also use the MacWrite Undo command to flip back and forth between versions of a sentence or paragraph, viewing both your additions and your pristine original. Undo in this context is a very

powerful editing tool. Once you Undo something, like adding a word or phrase or deleting with the Backspace key, the Undo command becomes the Redo command.

To experiment with Undo and Redo, move the mouse pointer to the menu bar and open the Edit menu by pressing and holding the mouse button. Scan the commands for a second. You've seen everything here before. Cut, Copy, Paste, and Show Clipboard are the same commands you used on the desktop and in MacPaint. Undo Typing is MacWrite's way of saying Undo. Execute Undo Typing by sliding the pointer to it and releasing the mouse button. Watch the sentence you just typed in vanish. Note how the paragraph reformats during Undo. Now go back to the Edit menu and scan the commands. Undo Typing has been replaced by Redo Typing, which lets you put back the sentence you typed in. Execute Redo Typing and watch the sentence spring back into place. Again, the paragraph reformats automatically to accommodate the addition.

In general, MacWrite lets you Undo and Redo any typing back to the last click of the mouse button. Once you click somewhere else on the MacWrite window, you lose the ability to Undo and Redo. When this happens, the commands are dimmed in the Edit menu. Also take note that Undo and Redo can be abbreviated using the <Command-Z> keystroke.

Customizing MacWrite

You've already looked briefly at the ruler on the top of the MacWrite document window and know that it's used for setting the format of your MacWrite documents. Changing formats, either of separate documents or within the same document, is a critical feature of word processors. MacWrite certainly lives up to the competition by letting you change formats at any point within a document. Every time you want to change formats, all you do is call up another MacWrite ruler and place it in the document, change its settings, and then start typing.

The most obvious formatting feature is the measuring ruler at the top of the line. With the MacWrite window at its current size, you can see from the 1″ mark over to the 7¼″ mark on the very right side of the ruler. This measuring stick is divided into one eighth of an inch segments and measures the exact placement of the margins and text on the printed version of your MacWrite document. Because the Macintosh screen is relatively small, you only see one eighth of an inch of the left

and right margin. If you were to type in a page or so worth of text under the current format and then print it out with the Imagewriter, your margins on the printout would be a full 1⅛" left margin and a full 1½" right margin. You don't see these complete margins on the screen because space is at a premium. Instead you see the complete body of text you are writing measured with the inch scale at the top of the ruler.

Because you must live within the restrictions of the small Macintosh screen, your text can never stretch beyond 6½" on the printed page. You can defeat this and make your text stretch a full 7½", but you lose the ability to view the last inch or so of text along the right side of the document window. Unless you have a very special reason for stretching the text this far, it's best to leave all your writing within the 6¼" limit so you can see everything you write within the MacWrite window.

Attached to the bottom line of the measuring ruler you see two small black triangles at either end of the window and a small hollow triangle fastened just below the 5½" mark. The two black triangles are the margin markers. The placement of these along the measuring line determines the margins on the printed page. As you can see, the left margin is preset at 1⅛" while the right margin is set at 7". The difference between these two numbers, 5⅞", is the width of the text on your screen and on a printout. As mentioned above, you can stretch the width of the text by placing the left and right margin markers at the 1" and 7¼" marks, the extremities of the inch scale.

Also attached to the inch scale is a small arrow with a block at its end. Unless you've changed the ruler settings, the block is now protruding from the bottom of the left margin marker. This is the indentation marker which controls the number of spaces from the left margin that the first line of a paragraph will begin. Indentation can be varied with this marker. You can set normal indentation, where a line starts two or three spaces in from the left margin, or hanging indentation, where the first line of a paragraph starts to the left of the margin marker.

The hollow triangle under the 5½" mark is a regular tab marker, used to set the place along the ruler line where the insertion point will jump when you strike the Tab key on the keyboard. You can set up to ten tabs, as you'll see later, along the inch scale. You can also set decimal tabs for aligning columns of numbers or text in an orderly fashion.

The bottom third of the ruler sports nine boxes, each filled with a different image. The two small boxes on the left with the hollow triangles are the tab wells from which you get additional tab markers. The mouse drags them out of the well and onto the inch scale. The two types of tabs are differentiated by the completely hollow triangle (regular tab) and the hollow triangle with a decimal point inside (decimal tab). Both tabs may be used together on the same inch scale.

In the middle of the bottom of the ruler are three more boxes filled with parallel horizontal lines. These boxes are used to set the line spacing of text. If the first box is black, i.e., selected, then the text you typed in a few pages back is single-spaced. Clicking the mouse button while the pointer is on these boxes selects the line spacing. MacWrite reformats the affected text automatically. The second box sets line spacing at one and a half spaces while the box on the right sets double-spacing.

At the right-hand side of the ruler are an additional four boxes that resemble the line-spacing boxes. These boxes let you select the justification or alignment of your text. If the first box is selected, then your text is left-justified, which simply means that everything you type lines up evenly against the left margin, no matter where you set it. Left-justified text is the most common way text is arranged on a typewritten page. The second box, filled with the centered lines, centers your text between the two margin markers. The third alignment box, filled with the lines against the right edge, right-justifies your text by lining it up with the right margin. Full-justification, which aligns your text evenly with both the right and left margins, is selected using the last box on the right. Notice that just like the line-spacing boxes, the pictures within the alignment boxes indicate exactly what effect selecting each box produces on the text.

MacWrite's Default

Every new document you open with MacWrite comes with the same formatting settings. Just like MacPaint—which opened every new document from the desktop with the paintbrush, single-width borders, and the black pattern—new MacWrite documents come with a preset ruler in addition to the text setting of 12 point Geneva plain (New York with version 1.0). MacWrite's default ruler settings are:

Single-Spacing
Left-Justified Text
One Regular Tab Marker at 5½″
1⅛″ Left Margin (marker set at 1⅛″)
1½″ Right Margin (marker set at 7″)
No Indentation (marker set at 1⅛″)

These settings are a good compromise, but you will certainly want to change them to accommodate the work you do with MacWrite.

Playing with Formats

Make sure the text you typed in a few pages ago is still on the screen. If it's not, then either retype it or type in two paragraphs of your own. The first format change you'll make will be in the line spacing. Move the pointer onto the ruler and position it over the middle line spacing box. Click the mouse button to select one-and-a-half spacing and watch MacWrite reformat both paragraphs on the screen automatically. Even the space between the two paragraphs is reformatted. Before selecting another line-spacing option, move the pointer to the Edit menu and press the mouse button to view the commands. The very first command, where Undo and Redo reside, has changed to Undo Ruler Change, though it's still abbreviated by <Command-Z> on the keyboard. As you can see, MacWrite customizes Undo and Redo so that you are always aware of exactly what you can or cannot undo. Execute Undo Ruler Change by selecting the command with the pointer and then releasing the mouse button. All of a sudden your one-and-a-half spacing is replaced with the original single-spacing. Slide the pointer back to the Edit menu and look at Undo Ruler Change. It now reads Redo Ruler Change. Until you click the mouse somewhere on the screen, you can Undo and Redo the Ruler Change to your heart's content. For now, execute Redo Ruler Change.

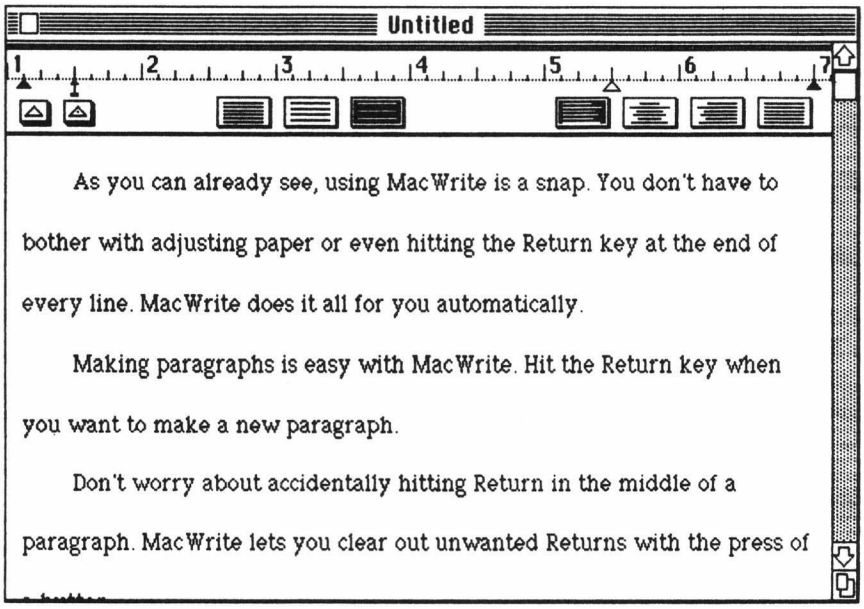
Now move the arrow pointer to the third line-spacing box. Click on it to double-space both paragraphs in the window. Double-spacing almost completely fills the window with text. Notice again the space between the paragraphs has been reformatted and that Undo and Redo Ruler Change are also available in the Edit menu.

Moving Markers

Leave the text on your screen double-spaced. As it now stands, the extra line spaces make the text more readable and the overall page more attractive. But you still want to make this look more like the writing you do on a typewriter. The first thing to change is the indentation marker, presently hiding underneath the left margin marker at the 1⅛" point. You can see the small block hanging out from the margin marker, which lets you know that the indentation marker is indeed under there. Move the arrow to the indentation marker, placing the very tip of the arrow on the small block under the margin marker. Now drag the indentation marker by pressing and holding the mouse button. Notice that you can only drag the indentation marker along the inch scale, and

not into the window or anywhere else. If you click on the inch scale itself accidentally, you will select the ruler. Selected rulers can be copied and moved around like text. Later in this chapter you will work extensively with copied rulers. For now, click anywhere in the document window to unselect the ruler, and proceed.

Drag the marker to the 1½" mark on the inch scale and release the mouse button. Watch as the text in the window automatically springs into its new position, with the first line of each paragraph indented five spaces. Drag the indentation marker to the 2" mark and place it by releasing the mouse button. Watch again as the text jumps into its new position. Now move the pointer to the Edit menu to look at the status of Undo and Redo. As expected, you can undo and redo your last indentation change. Undo the last change so that the indentation marker is back at the 1½" mark on the scale.


Untitled
1
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As you can already see, using MacWrite is a snap. You don't have to bother with adjusting paper or even hitting the Return key at the end of every line. MacWrite does it all for you automatically.
Making paragraphs is easy with MacWrite. Hit the Return key when you want to make a new paragraph.
Don't worry about accidentally hitting Return in the middle of a paragraph. MacWrite lets you clear out unwanted Returns with the press of

Drag the indentation marker along the inch scale to automatically indent the beginnings of paragraphs.

Resetting margins is also a simple matter of dragging the appropriate margin marker to a new spot along the inch scale and placing it by releasing the mouse button. Move the arrow pointer to the left margin marker, which is currently at the 1⅛″ position. Place the tip of the arrow over the triangle and drag it across the inch scale. Like the indentation marker, you can't drag it off the line. Move the margin marker to the 1½″ position so that it's covering the indentation marker. Place it by releasing the mouse button. The text aligns itself automatically against this new margin. Since the indentation marker and the left margin coincide, there is no paragraph indentation.

Place the arrow over the left margin marker again and drag it to the left, placing it at the 1¼″ position. If you have trouble grabbing the margin marker because it's right on top of the indentation marker, a sure way of latching on to it with the pointer is to place the tip of the arrow at either corner of the base of the margin triangle. Once the margin marker is placed in its new location, the text lines up against the new margin.

To get an idea of what hanging indentation looks like, drag the indentation marker to the 1¼″ position, placing it on top of the margin marker, then drag the left margin marker to the 2″ position. As you can see by looking at the MacWrite window, hanging indentations look rather odd compared to the regular formats most of us use when we write. There will be situations, though, when a hanging indentation is the perfect way to make a point. Get rid of the hanging indentation by dragging both the margin marker and the indentation marker back to the original default setting of 1⅛″. Move the pointer to the right side of the ruler and place the arrow on top of the right margin marker, currently set at the 7″ position. Drag it to the left and place it at the 6½″ position. The text lines up along this new margin. Now drag the right margin marker again toward the left. You'll find that once you get within 3/16″ of the tab marker you can't drag the margin marker any farther. The reason for this is obvious. You can't have a tab setting outside the margin. Neither can you place a margin marker within 3/16″ of a tab.

To eliminate the tab marker for the moment, position the arrow over it and drag it down in the ruler box until it becomes bold. Then release the mouse button and the tab marker vanishes. This is the quickest and easiest way to dispose of unwanted tabs. Now that the tab marker has been removed, drag the right margin marker to the 4" setting on the inch scale and release the mouse button. The text in the window reformats immediately into a long, slender column. Since the margins are so close now, most of the second paragraph is out of sight below the bottom of the window. Try dragging the right margin marker to the left again. Once you get to the 3¼" setting, you can't drag any farther. MacWrite prevents you from placing left and right margin markers within 2" of one another.

Now that you're familiar with most of the ruler functions, set both margin markers back to their original default settings: 1⅛" for the left margin and 7" for the right margin. Drag the indentation marker to the 1¼" setting to make a two-space indentation at the beginning of each paragraph. This makes the text in the window easier to read and is a more common format than the default setting of no indentation. Also set the alignment back to left-justified, and set the line spacing to one and a half spaces. Remember to click on the appropriate box at the bottom of the ruler. Don't worry about the tab you removed for the moment. We'll use tabs again shortly.

Adding to the Story

Make sure the blinking insertion point or cursor is at the very end of the second paragraph. If it's not, then use the mouse to position the I-beam anywhere after the last character of the second paragraph and click once. This will deposit the insertion point and the end of the text. Now hit <Return> and type the following, remembering that word wrap takes care of the edges of the document for you and indentation is automatic:

> **When you set paragraph indentation, the beginning of each new paragraph is automatically indented. There's no need to hit the Tab key. MacWrite knows when to indent by checking for the presence of a Return key character. When it finds one, it puts indent to work.** <Return>

Another nice feature of MacWrite advances the text automatically inside a window so you can continue to read the lines you are typing. This ensures that your typing never vanishes off the bottom of the window. You can, of course, use the scroll bar to scan your entire document in exactly the same way you view the contents of windows on the desktop.

As soon as you hit <Return> at the end of the first paragraph, the entire window jumps up about half a screen, scrolling the beginning of your text past the ruler. Whenever you hit <Return> to start a new paragraph or line near the bottom of the window, this will happen. If you are typing text within a paragraph and you come to the bottom of the window, the text in the window will advance one line at a time.

Scrolling MacWrite

As you create MacWrite documents that take up more than a single window's space, you need to use the scrolling techniques learned on the desktop to scan your writing. On the right-hand edge of the MacWrite window, you should see the scroll bar with its box about halfway down from the top. The scroll bar displays the relative position of the section of the document showing currently in the window. Therefore, if the scroll box is in the middle of the scroll bar, the contents of the window are located near the center of your document. If you have a one-page letter, you're located near the center of the page; if you have a fourteen-page memo, then you're near page seven; etc. When you drag the scroll box to scan through your document, drag it to the relative position on the scroll bar and then use the arrows at the top and bottom of the scroll bar to "fine-tune" your scrolling.

If you've forgotten the techniques of scrolling, then a quick review is in order. Clicking the arrows at the top and bottom of the scroll bar advances the text one line at a time, either up or down. To scroll continuously, line by line, press and hold the mouse button while the pointer is on either arrow. You can look at an entire window of text by moving the mouse pointer to the gray area of the scroll bar and clicking once. Clicking above the scroll box moves the text toward the top of the document. Clicking below the scroll box moves the text toward the bottom of the document. Moving in increments larger than a windowful is achieved by positioning the mouse pointer over the scroll box and then dragging it to the appropriate place on the scroll bar. Drag it to the end to jump to the end of a document, drag it to the middle to see the middle, etc.

Unlike other windows on the Macintosh desktop, the MacWrite window has no horizontal scroll bar. This unexplained wrinkle in the Macintosh's uniform environment is unfortunate because it prevents you from shrinking a MacWrite window and looking at its contents. Be forewarned of this fact and let's hope that future versions of MacWrite will offer horizontal scrolling.

Another interesting feature of MacWrite is the way it handles the ruler at the top of the document. As you typed the last two paragraphs into the window and the text scrolled upward, so did the ruler. Just because you cannot see the ruler, don't think it has been lost or that your formatting is gone for good. The first ruler in every new MacWrite document is attached to the top of the MacWrite document window. As you type, the text and the ruler scroll out of sight but none of your formatting is lost. You can type an entire document with just a single ruler at the very top. MacWrite rulers control the formatting for all text that follows them, whether it's a three-sentence note or a ten-page term paper. Go back to the MacWrite window and drag the scroll box to the top of the bar. When you release the mouse button, the ruler and the beginning of your document snap back into view. Now place the arrow pointer on the down arrow at the bottom of the scroll bar and click slowly to advance the document a line at a time. With the first and second clicks, the ruler advances with the text and then vanishes. With each successive click, you see another line of the document.

Saving Your Investment

MacWrite is a step beyond most word processors because it's easy to use and capable of some very sophisticated formatting and editing, but one feature it has in common with all computer word processors is the potential for loss of text due to a power failure or some other unforeseen disaster. When you commit your words to the electrical impulses of a computer, be it a Macintosh or any other, you must protect your work by going to the File menu and choosing Save every fifteen or twenty minutes. Then, if a power failure shuts down your Macintosh, you'll lose only a quarter hour's worth of work. You can live with that. You can't afford to lose several hours' work. Therefore, save often.

Though you're past the fifteen-minute time limit and the writing on your screen now is hardly the kind of thing you want to use your Macintosh for on a daily basis, if you were to lose those five paragraphs, you'd have to spend a few minutes retyping them into the window because you need them for another section or two in this chapter. Therefore, move the pointer to the File menu and select Save. Since this is the first time you saved this text (or did you anticipate this?), a dialog box will appear on the screen asking you to name the file. Type in the name First Words and hit <Return> to begin the save.

Since you won't need to save this document to the data disk, simply save it to Write-Paint and deposit it into the Trash once you're back at the Macintosh desktop. Larger, more important documents should be saved to the data disks directly. Save them using the procedures outlined in the MacPaint section by selecting the Eject or Drive button when prompted with the Save dialog box. Swap the Write-Paint disk for Work Disk 1 and name the document. Click the Save button or hit <Return> to begin the save. Depending on the length of your MacWrite document you might have to make several swaps to save it to the disk completely. Once saved, though, you can pick up working where you left off.

Keeping Tabs

A few pages back, when you set the current format for First Words, you eliminated the default tab from the MacWrite ruler. Now that you have a copy of First Words safely stored on the Write-Paint disk, you can continue to experiment with the document. This section shows you the basics of placing tabs on the ruler and using them for special formatting needs.

At the bottom left edge of the ruler are the two tab wells, each filled with a hollow rectangle. The left box contains the regular tab marker while the right box contains the decimal tab marker. Tabs are stored in the wells. To place a tab, you position the arrow pointer over the appropriate tab well and drag the tab up to the ruler, placing it along the inch scale in the same fashion as placing left and right margin markers.

Scroll the First Words document to its top with the scroll bar if it's not already there. Place the arrow over the regular tab well, the one on the left, and drag the hollow triangle up to the inch scale line. Position the marker anywhere on the line for now and release the mouse to place it. Once on the inch scale, tabs can be repositioned by dragging along the inch scale. Drag the tab to the 2″ mark. Notice that each time you reset the tab, the text of the document in the window is not affected in any way. Unlike the margin markers or the line-spacing boxes, which directly affect text, setting tabs only affects the function of the Macintosh keyboard's Tab key.

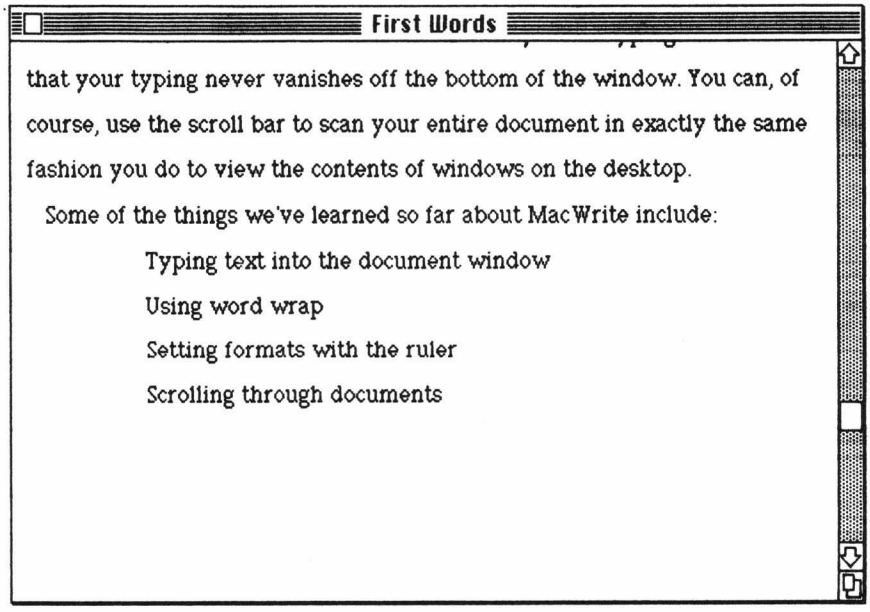
Setting more than one tab along the ruler is as simple as going back to the tab well, dragging another tab up to the ruler scale and placing it. In fact, you can place as many as ten tabs on a ruler. Any attempt to

place more than ten is simply ignored by MacWrite. For now, leave the single tab at the 2" mark and scroll to the end of the First Words document. Make sure the blinking insertion point is positioned just after "desktop," the last word of the document. If it's not, move the I-beam with the mouse to the end of the line and click once to place the insertion point. Then hit <Return> and type the following:

Some of the things we've learned so far about MacWrite include:
<Return>

<Tab> Typing text into the document window <Return>
<Tab> Using word wrap <Return>
<Tab> Setting formats with the ruler <Return>
<Tab> Scrolling through documents <Return>

<Tab> and <Return> indicate that you are to press these keys on the Macintosh keyboard, not type out Tab and Return verbatim into the document.


First Words
that your typing never vanishes off the bottom of the window. You can, of course, use the scroll bar to scan your entire document in exactly the same fashion you do to view the contents of windows on the desktop.
Some of the things we've learned so far about MacWrite include:
Typing text into the document window
Using word wrap
Setting formats with the ruler
Scrolling through documents

Text aligned with tabs.

As you typed, and hit <Tab> to begin each new line of the list, the insertion point jumped into place automatically at the 2" mark, where you placed the tab marker. In this respect, setting tabs in MacWrite is exactly like setting tabs on a typewriter. You mark the places along the page you want to jump to, and hit the Tab key to get there. Unlike a typewriter, or even most word processors for that matter, MacWrite tabs can be undone in a single keystroke with <Backspace>.

To illustrate this, place the insertion point at the beginning of the next line by hitting the Return key once. Now press the Tab key. The insertion point moves to the 2" position. Now hit <Backspace>. Instead of deleting back one space to the left as <Backspace> normally does, the entire length of the tab is deleted back to the beginning of the line. Now hit the Tab key again. The insertion point should be back at the 2" mark. Hit <Tab> once more. Because there are no tabs after 2", hitting tab again sends the insertion point not to the beginning of the next line, but to the next tab stop on the next line. Continue hitting the Tab key to watch the insertion point drop down to the next line's tab stop. Use <Backspace> to bring the insertion point back. Whenever there are no more tabs on a line, MacWrite sends the insertion point to the next tab stop on the following line. This is a handy feature for building tables and columns within MacWrite documents.

Adjusting Tabs

Once you have typed text into a MacWrite document, using either the preset tab at 5½" or any combination of your own settings, you can adjust the tabs along the inch scale and adjust the affected text automatically.

Scroll to the top of First Words by dragging the scroll box from its current position along the scroll bar to the very top. Place the tip of the pointer arrow over the top of the tab marker at 2" and drag the marker to the 3" position. Release the mouse button to place the tab at its new position. Now scroll back to the end of the text in First Words and look at the list you just typed. It's over near the center of the window. Resetting the tab moves the text into position automatically using the new tab setting as its reference. Go back to the top of the document and drag the tab back to the 2" position. Look at the list at the end of First Words again. It's aligned back at the 2" marker. Clearing the tab from the ruler altogether leaves the list indented one space from the regular paragraph indentation.

Decimal Tabs

Decimal tabs obey the same rules as regular tabs, except that the text forms a column with all decimal points (made by typing the <.> or period key on the keyboard) aligned at the decimal tab marker position. You'll use decimal tabs regularly to set up tables of numbers—usually prices—in neat columns within MacWrite documents.

Placing decimal tabs is as easy as placing regular tabs. Scroll the First Words document to the top so you can see the entire ruler. Leave the single regular tab at the 2" mark. Removing it would destroy the formatting of the list. Place the arrow pointer over the decimal tab well—the right-hand well—and drag a decimal tab marker up to the inch scale. Drag it to the 4½" mark and place it by releasing the mouse button. You should now have only two tabs on the entire ruler: a regular tab at the 2" mark and a decimal tab at the 4½" mark. If there are any stray tabs, remove them by placing the arrow pointer over the unwanted tab marker and then dragging it to the bottom of the ruler. When the tab marker triangle becomes bold, release the mouse button to send the tab back to its well for safe-keeping.

Once you've set up the ruler as prescribed above, check to make sure that the blinking insertion point is at the very end of the First Words document, after the word "documents" in the list. Then type the following, making sure to press the key named by the hairpins (<>) when indicated:

<Return>
MacWrite lets you set tabs for indenting and highlighting your work. The above list uses regular tabs. A special feature of MacWrite lets you set decimal tabs for aligning columns of numbers. For example, <Return>

<Tab>	Row one <Tab>	123.453 <Return>
<Tab>	Row two <Tab>	44.50 <Return>
<Tab>	Row three <Tab>	99.101 <Return>

As you type and hit the second tab of each row, the insertion point jumps to the 4½" mark and waits for you to type. When you start to type a number it moves to the left of the decimal tab mark. The insertion point remains stationary as MacWrite waits for a decimal point. After you press <.> and resume typing, the numbers and the insertion point move toward the right edge of the window in the normal fashion.

Using decimal tabs, you can create multientry tables of numbers limited only by MacWrite's restriction to ten total tabs, of either kind, per ruler. Like regular tabs, decimal tabs let you reformat by sliding the decimal tab markers along the ruler scale to see which arrangements look best in your particular document.

Since you're almost at the end of your very first session with MacWrite, it seems fitting that you should finish First Words with a note letting you know just where you stand. Make sure the blinking insertion point is at the end of First Words, right after the number 99.101 in the column. Hit <Return> and type the following sentence:

This marks the end of your first session with MacWrite.

Congratulations! You're on your way!

Saving First Words

You've no doubt exceeded the "save every fifteen minutes" rule once again, so now is a good time to slide the pointer to the File menu and select the Save command. Though you are finished with the first section of MacWrite, you'll use the First Words document as an editing example in the next section. That's why it's important to save a final copy now.

Editing with MacWrite

No matter what you write, be it a note to your best friend or a full-length report for your company, you have to edit your writing, correcting not only the obvious typographical errors but also rewriting or reorganizing to make your point clearly and succinctly. Until the advent of word processors and computers, editing required the writer to break out the red pen and read through each typewritten sheet, marking errors for later correction. Simple errors, such as misspelled words, could be fixed only with a careful application of correcting fluid. Larger offending sections required the writer first to fix and then to retype

entire pages. After all, an addition of just a single line on page five might force you to retype the entire document to adjust the page numbering and formatting. If your document happened to be twenty-five pages long, you had plenty of typing to do.

Computers and word processing simplify the editing process. Because the writing you do on a computer is not permanent, you can easily move, delete, change, and in every way alter your writing with the application of a few simple commands. Insert a paragraph in the middle of a twenty-five page report and let the word processor reformat the text and page numbering—automatically. Or move entire pages around a document in a split second. Editing with a computer is not only easier than editing on paper, it's also fun because it frees you from the drudgery work of retyping.

While MacWrite performs all the routine editing functions that move, copy, and delete, its biggest advantage is the mouse. Though you're already adept at using the mouse for selecting icons and moving windows, after a few minutes with the mouse in MacWrite, you'll recognize it as a powerful text editing tool. Instead of having to rely on the awkward arrow or cursor keys of most computers, which restrict your movement to the vertical and horizontal, editing with the mouse lets you place the I-beam anywhere in a document in a flash. Selecting text for editing has never been easier.

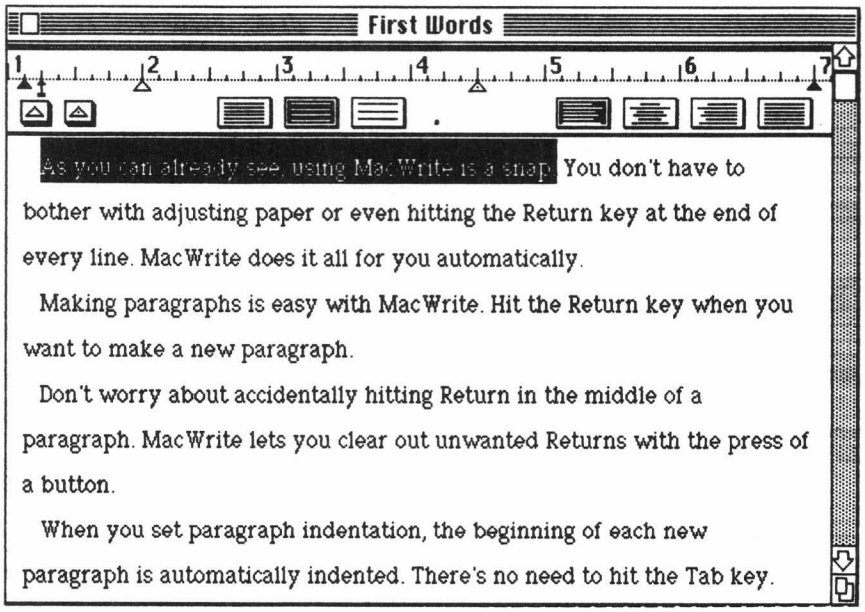
Editing First Words

If you've saved a copy of First Words to the Write-Paint disk and still have the document in the MacWrite window, you're all set to begin your first MacWrite editing session. You're already familiar with the fundamentals of editing text from the work you did on the Macintosh desktop. The comments you typed into Get Info windows used the same text editing principles you'll use in MacWrite. The text in the Note Pad desk accessory also follows the MacWrite editing principles. In fact, every piece of text you work with on the Macintosh, be it writing comments in a Get Info window or renaming an icon, utilizes the same editing principles that are used in MacWrite. Once again, the beauty of the uniform working environment comes into play.

Scroll to the top of First Words by dragging the scroll box to the top of the scroll bar. As I mentioned at the beginning of this book, selecting is the most fundamental action you perform regularly with the Macintosh, aside from flipping on the power switch. It should come as no surprise, then, that the most basic editing technique in MacWrite is selecting. Like the text you edited on the Macintosh desktop in the Get Info window, text in a MacWrite document must first be selected with the mouse before you have access to all the commands in the Edit menu.

Selecting text can be done in a variety of ways. The most common involves placing the I-beam at the point you want to begin editing and then dragging the I-beam to the point you want to stop editing. You can select a single blank space or an entire document in this fashion. Move the I-beam with the mouse so that it's at the very beginning of the first sentence of First Words. Click the mouse button to place the blinking insertion point. Now bring the I-beam to the insertion point and drag it slowly to the right by holding down the mouse button. As you drag, the text under the I-beam becomes selected with the familiar black outline. Continue to drag until you have reached the period at the end of the

sentence. Release the mouse button. The entire sentence is now selected. Slide the pointer to the Edit menu and scan the commands. All three editing commands—Cut, Copy, and Past—are available.


First Words
As you can already see, using MacWrite is a snap. You don't have to bother with adjusting paper or even hitting the Return key at the end of every line. MacWrite does it all for you automatically.
Making paragraphs is easy with MacWrite. Hit the Return key when you want to make a new paragraph.
Don't worry about accidentally hitting Return in the middle of a paragraph. MacWrite lets you clear out unwanted Returns with the press of a button.
When you set paragraph indentation, the beginning of each new paragraph is automatically indented. There's no need to hit the Tab key.

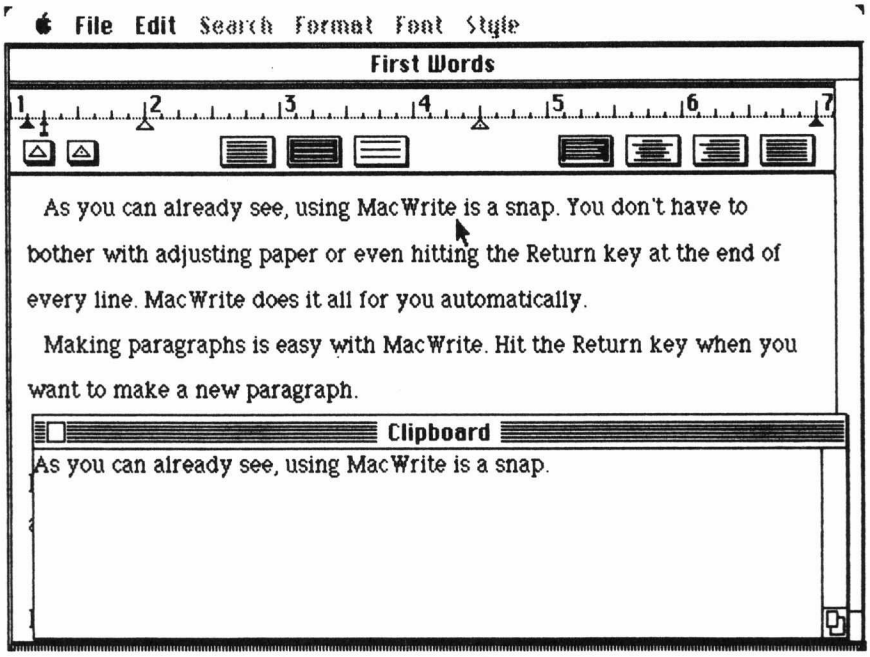
Text is selected in MacWrite by dragging the I-beam over the word or phrase. Entire documents may be selected in this fashion.

This selected text can now be edited in a variety of ways. One of the most basic is simple deletion. When you want to go back into a document and delete words or phrases, you'll select the passage and remove it with a press on the Backspace key. Press <Backspace> now to delete the selected sentence. The screen will blink for a second and the sentence vanishes. Notice that MacWrite automatically reformats the paragraph (actually the entire document) to compensate for the deleted sentence.

Using the Backspace key in combination with selection is by far the quickest way to delete words or phrases in MacWrite. There is one caution, though. Whatever you select and delete with <Backspace> is *not* cut to the Clipboard. Therefore, only use <Backspace> and selection when you're sure you don't want a copy of the text you're

removing. If you find that you've made a mistake and accidentally deleted something important, use Undo from the Edit menu to get your selected phrase back.

Assuming you haven't clicked anywhere since pressing <Backspace>, go to the Edit menu and select Undo Typing. Almost immediately, your selected phrase is replaced in the first paragraph. While the first sentence is still selected, slide the pointer to the Edit menu and select the Copy command. Copy places an identical copy of any selected text onto the Clipboard. Now go back to the Edit menu and select Show Clipboard. When the Clipboard window appears at the bottom of the screen, it contains the selected phrase.


File Edit Search Format Font Style
First Words
As you can already see, using MacWrite is a snap. You don't have to bother with adjusting paper or even hitting the Return key at the end of every line. MacWrite does it all for you automatically.
Making paragraphs is easy with MacWrite. Hit the Return key when you want to make a new paragraph.
Clipboard
As you can already see, using MacWrite is a snap.

Selected text that is cut or copied is automatically placed on the Clipboard.

The phrase will stay on the Clipboard until you Cut or Copy a new selection there. Close the Clipboard window by clicking in its close box. You can also close the Clipboard window by executing the Hide Clipboard command in the Edit menu.

The Clipboard is the primary means of moving text within MacWrite documents. Be it a single word or an entire page, you'll cut or copy your selection to the Clipboard, scroll through the document to place a new insertion point, and then simply copy the contents of the Clipboard at the new location. The entire process takes less than a minute.

Now direct your attention back to the First Words window for a moment. Let's say you don't want to select the entire first sentence, but only up to the word "MacWrite." How can you unselect the sentence and select the portion you want? MacWrite lets you select and unselect simultaneously. Every time you select a word or phrase with the I-beam, all previous selections are unselected. Therefore, you can only have one continuous selection in a MacWrite document at a time.

To change the selection in First Words, move the I-beam to the beginning of the first sentence and then drag the I-beam across the phrase until the black selection block stops just before the word "MacWrite." Notice that you didn't even have to place the insertion point. You simply moved to the new location and dragged from there. You can, if you like, cancel any selection in a document by clicking the mouse button anywhere within the document.

Now that the first portion of the sentence in First Words is selected, hit the Backspace key to delete it. The selected text vanishes and the paragraph is reformatted automatically. Move the I-beam to the beginning of the third paragraph and click the mouse button to place the insertion point just before the "D" in "Don't." Because this is the beginning of a paragraph, it was made by hitting the Return key at the end of the preceding line. You can remove the invisible Return character to eliminate unwanted, stray Returns, and merge separate paragraphs together by striking the Backspace key.

Hit the Backspace key to join the third paragraph with the second. Watch as the third paragraph jumps into position and becomes the remainder of the second paragraph. As always, MacWrite reformats the paragraph and the entire document automatically to accommodate the change.

Editing on the Fly!

Until now, all the editing you've done on First Words has been with the mouse. You haven't had to touch the keyboard once. That's the magic of the mouse. Another piece of MacWrite magic lets you select a word or phrase to be changed in the usual manner with the mouse and then simply type in the change, without having to worry about deleting any part of the selection whatsoever.

To illustrate this extraordinary feature, move the I-beam over the word "Making" at the beginning of the second paragraph. Instead of selecting this word by dragging the I-beam across it, simply double-click on the word, selecting it instantly. This is one of the handiest MacWrite shortcuts you'll ever use. Double-clicking on any word within a MacWrite document selects that word instantly.

Now that "Making" is selected, there are several ways you can change it. The way that probably comes to mind first is to hit the Backspace key to delete the word and then to type the change. Another way is to cut the selection from the Edit menu and to type the change Both methods work, but there is an even faster way to make the change; just start typing on the keyboard. For practice, change the word "Making" to the word "Starting." Go to the Macintosh keyboard and type the new word. After you type the first letter, the black selection disappears from the document and the beginning of the change appears. Keep typing until you've typed all of "Starting." Once finished, notice that the blinking insertion point is poised directly after the "g" in "Starting," waiting for more typing.

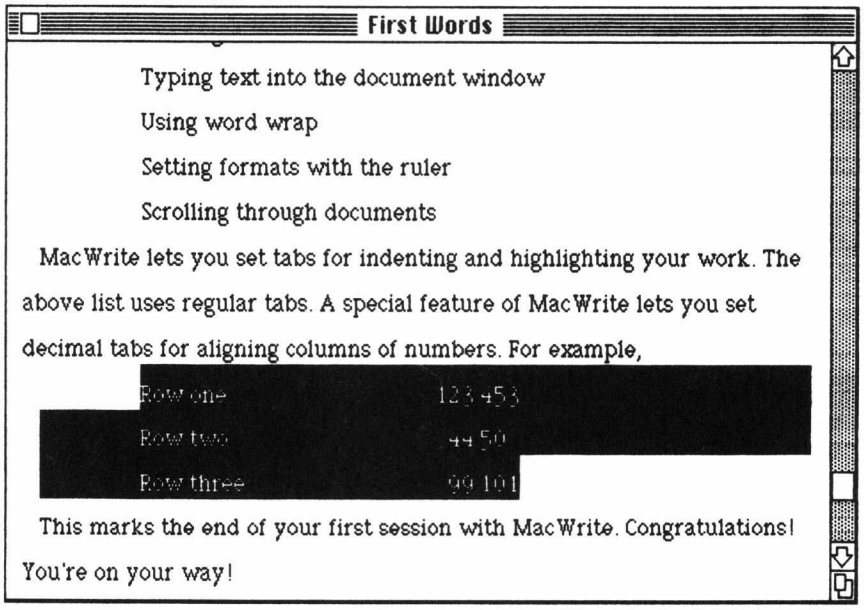
Using this MacWrite feature saves you from selecting, deleting, and then typing in changes. Of course, what you select to type over must be expendable, as it isn't placed on the Clipboard. (You can still use Undo if you make a mistake and type over the wrong item.)

The real power of this feature lets you select a single word or an entire document and replace it with a word or phrase of any length. Select a single word as you just did with "Making" and replace it with another word or an entire page. MacWrite doesn't limit the length of your change and automatically reformats the entire document, if necessary.

Becoming Your Own Typesetter

The use of the Macintosh's fonts and styles may appear to be a gimmick at first. After all, typewritten communication has lasted this long without nine fonts and six styles to choose from. But judicious use of fonts and styles can make otherwise ordinary reports, papers, and letters sparkle with professionalism, and can play very useful roles in calling attention to important passages.

Scroll down to the bottom of the First Words document by dragging the scroll box almost to the bottom of the scroll bar. Position the I-beam at the beginning of the first column, just before "Row one." Now drag the I-beam down and across the two columns, stopping just after the last digit in 99.101. The black selection area should cover both columns and the spaces at the end of the first two lines and at the beginning of the last two lines.


First Words
Typing text into the document window
Using word wrap
Setting formats with the ruler
Scrolling through documents
MacWrite lets you set tabs for indenting and highlighting your work. The above list uses regular tabs. A special feature of MacWrite lets you set decimal tabs for aligning columns of numbers. For example,
Row one 123.453
Row two 44.50
Row three 99.101
This marks the end of your first session with MacWrite. Congratulations! You're on your way!

Selected columns.

Move the pointer to the Font menu and select Chicago font. After the disk drive hums for a second, the selected text changes from the standard Geneva (New York in version 1.0) to the new font. Notice the selection remains intact and is not lost when the new font is displayed. This lets you audition various changes in the selected area before you click in the window. Look at the columns now. The Chicago face adds a certain authority to the figures. If you can't quite see the change through the black selection area, click the mouse button anywhere within the window. Now look at the columns. They stand out prominently, calling attention to their content.

Select the columns again. When selecting, you needn't always start to drag at the beginning of the text. You can start from the end and drag up through the document, toward the menu bar.

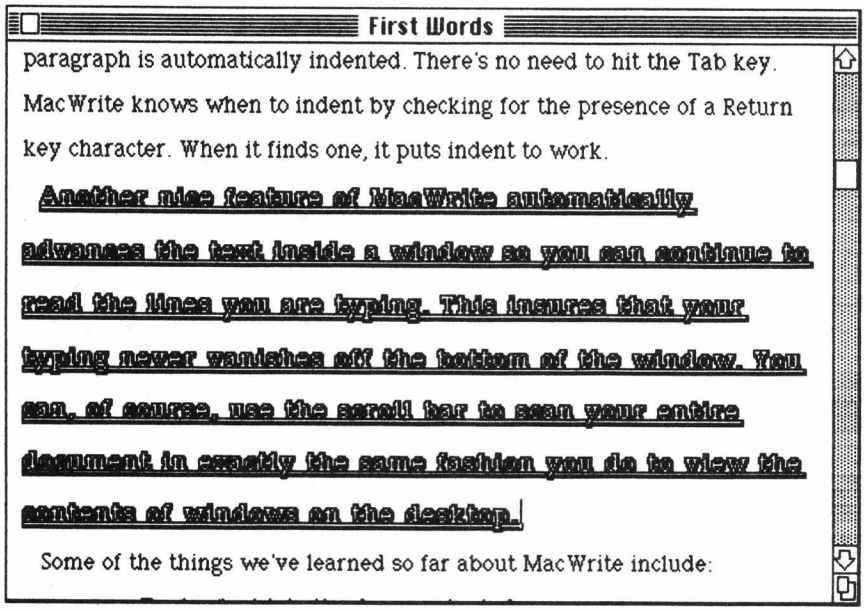
Now experiment with some other fonts. Then, when you're finished playing with the font menu, select Chicago.

The Latest Styles

In addition to the seven fonts (nine with version 1.0) in MacWrite, there are eight styles (six with version 1.0) available. These are most of the same styles you used in MacPaint and are abbreviated with the same keyboard shortcuts. Changing styles in MacWrite, like changing fonts or sizes, requires that you select the word or phrase to be changed and then execute one of the commands in the Style menu, either with the mouse, or through the keyboard. Because you're editing a document that's already been typed, use the mouse to choose commands from the menus. If you were typing in a document and wanted to change the styles as you went along, then you might want to use the keyboard shortcuts to cut down on going back and forth to the mouse.

Drag the scroll box to the middle of the scroll bar. In the middle of the fourth paragraph in First Words, there is a reference to the scroll bar. Position the I-beam so that it's directly to the right of the "r" in "Bar" and drag the selection block to the left until it covers both words. Now slide the pointer to the Style menu and scan the first six commands. Note that the Style menu gives examples of each style in the command line—unlike the Font menu, which forces you to remember what each font looks like. There should be a check next to Plain Text at the very top of the pull-down menu. Slide the pointer to Bold and release the mouse button. The selected phrase becomes bold-faced. Again, if the black selection block interferes with your view of the new style, then click anywhere in the window to remove it. Reselect "Scroll Bar" when you've finished looking.

Now go back to the Style menu and select Plain Text again, then select Underline. Again, both words are underlined instantly. Notice that the space between the words is underlined. Whenever you underline more than one word, all blank spaces are also underlined. If you want only the words or characters themselves underlined, you have to select each word individually (by double-clicking on it) and then execute Underline. (An interesting peculiarity of underlined text still lets you double-click to select single words, even if the word is connected to others by the underline. This is an especially important feature. Without it, double-clicking an underlined word would select all material connected by the original underline.) If "Scroll Bar" is still selected and underlined, go back to the Style menu once more and execute the Shadow command. Now the selected words are both underlined *and* shadowed. Remember from MacPaint that Bold, Italic, Underline, Outline, Shadow, and even Superscript and Subscript can be combined together to form some very appealing combinations.


First Words
paragraph is automatically indented. There's no need to hit the Tab key.
MacWrite knows when to indent by checking for the presence of a Return key character. When it finds one, it puts indent to work.
Another nice feature of MacWrite automatically advances the text inside a window so you can continue to read the lines you are typing. This insures that your typing never vanishes off the bottom of the window. You can, of course, use the scroll bar to scan your entire document in exactly the same fashion you do to view the contents of windows on the desktop.
Some of the things we've learned so far about MacWrite include:

An example of the underline and outline text styles.

Saying Good-bye to First Words

You've arrived! You're finally at the end of a complete typing and editing session in MacWrite. Just stop and think for a moment about all the things you've learned so far: typing in windows, getting used to word wrap, making paragraphs with the Return key, using the ruler to set formats, viewing an entire document by scrolling, selecting text for editing and changing its appearance, and saving your document regularly to the Write-Paint disk for safety. You've mastered quite a bit of technique already, and you can put this knowledge to work on the Macintosh immediately, but you're about to move on to bigger and better things in the next section.

Begin by exiting First Words so that you can start work on a brand-new MacWrite document. Close First Words by clicking in its close box. If your most recent editing hasn't been saved with Save from the File menu, then you will be prompted to save or ignore your changes before closing. Assuming you followed the last few pages of instructions, click the Yes button. MacWrite will save the last version of First Words that was on the screen and then close the window, leaving you with the blank MacWrite screen. If you wish, you can remove First Words when you go back to the Macintosh desktop. You won't need it again, but it might be worth keeping a copy of it on your data disks should you or a friend want to review the first section of the chapter.

Learning with MacWrite

Following the lead of MacWrite, MacPaint, and the Macintosh working environment, this section introduces new features that combine elements from those you learned in the last section. For example, by the end of this section you will insert a column into a letter. That might sound difficult to you. The only columns you've made in MacWrite have been ones that you've typed directly into the First Words document. Adding a new column in the middle of existing ones would seem to be a different story, but if you break the task down into component parts, you'll discover you already know each step of the process: placing the insertion point by moving the I-beam and clicking the mouse button, setting tabs on the ruler, then pressing the Tab key.

Letters with MacWrite

Unlike First Words, which was a simple introductory typing exercise, the document you create next will be a letter that illustrates the range of MacWrite options for formal kinds of writing.

If you're at the opening desktop, get into MacWrite by double-clicking on the application icon on the desktop. Now move the pointer to the File menu and select the New command. New opens a fresh, untitled MacWrite document window, complete with default ruler, font, and style settings.

Start Typing

Before you can edit the next letter, you will have to type it into the document window. But even before you do that, you will have to change some of the default settings on the ruler at the top of the Untitled document. First, position the arrow pointer over the left margin marker, the small black triangle affixed at the 1⅛″ mark along the ruler scale. Drag the left margin marker to the 1½″ mark and, to place it, release the mouse button. Go back to the 1⅛″ mark, drag the indentation marker also to the 1½″ mark on the ruler scale and place it also. Direct your attention to the other end of the ruler scale and drag the right margin marker, currently set at 7″, to the 6½″ mark. Place it. Position the arrow next over the hollow triangle tab marker currently at 5½″. Drag it to the left and place it at the 4″ mark. Now dip into the regular tab well on the bottom left of the ruler and drag a new tab onto the ruler scale, placing it at the 2″ mark. For the time being, leave the single-spacing and left-justification boxes selected.

The following letter takes up three quarters of a page. Type the letter word for word, space for space. Don't correct any mistakes you think you see along the way. You'll correct those in the editing session. As before, when you see a keyboard key enclosed between hairpins (<>), strike it.

Type the following:

April 3, 1984 <Return>
<Return>
To: <Tab> Catalog Division, ACME Distribution, Inc.<Return>
From: <Tab> W.E. Coyote, President <Return>
<Return>
Re: <Tab> Catalog Orders <Return>
<Return>
Congratulations! ACME's catalog division just finished its most successful year ever. Orders were up over 9% from the previous year and shipping rose 4% in the same time period. Every one in the Catalog department deserves special praise: You've all done a fine job! <Return>
<Return>
I remember my early association with ACME's catalog department, first as a customer and later as part of its staff, when every order was handled personally by someone in the department. I'm happy to say that things are still done the same way twenty years later. Keep up the good work. <Return>
<Return>
For your information, I've listed our three most popular catalog items with the actual sales figures from 1983. <Return>
<Return>
<Tab> Item <Tab> Sales (units) <Return>
<Return>
<Tab> Instant Earthquake <Tab> 18,835 <Return>
<Tab> Nuclear Roller Skates <Tab> 14,378 <Return>
<Tab> Come Back Boomerang <Tab> 33,555 <Return>
<Return>
These three items have topped our list for the past two years and show no signs of slipping. However, our new products, especially the Do-It-Yourself series, promises great things for the coming years. Make sure they're prominently displayed in our new catalog.

As soon as you've finished typing this letter into the window, move the pointer to the File menu and select Save. As this is the first time you are saving the new document, you will be asked to name it. Type in the name ACME Memo and hit <Enter> to save. As usual, once the save is completed, you are returned to the document with its new name in the title bar of the window.

Take a minute to scroll through the entire document with the scroll bar's arrows, a line at a time. The relatively narrow margins restrict the width of the text on the page to five inches. Because the single-spacing default setting is untouched, the paragraphs look full. That's why the extra <Return> is added between each paragraph. If the paragraphs were any closer together, the document would be too cramped. As it now stands, it looks well proportioned. Notice the tab settings create titles for each column of sales figures and then align the left edge of the text. In this respect, tabs are nothing more than temporary margins.

Editing

Before going into the body of the ACME letter and cleaning up bits and pieces, there is one editing change to make that will improve the overall look of the memo considerably. This change requires that a few extra lines be placed between the very top of the letter and the date. If you were to print out the memo as is, you would get a single blank line on the top margin before the date. That's simply not enough space. Move the I-beam to the top of the document and place the insertion point just before the "A" in "April." Click the mouse button to drop the insertion point. Hit <Return> twice. The date drops one line with each press of the Return key. If you were to place the insertion point at the end of the date and then hit <Return>, you would insert lines between the date and the headings, not the top of the page.

Pulling Out a Desk Accessory

One of the first editing changes you'll make involves the name of the company on the memo: "ACME Distribution, Inc." Because this name is an official, registered name, the memo should include a trademark symbol. You remember that the Macintosh sports a full character set from its keyboard, including special symbols such as trademarks. The

only problem is that these symbols couldn't be marked on the keyboard itself without creating confusion, and you probably don't know what keys to press to get the trademark. Therefore, you can use a Macintosh desk accessory built just for this purpose: Key Caps.

Move the pointer to the Apple menu on the very left of the menu bar and open the pull-down menu. Select Key Caps. After a second or two, the disk drive quiets and the Key Caps window is displayed on your screen. Using Key Caps requires only that you press the Shift, Option, or Shift-Option keys to view the characters on the Macintosh keyboard. Press Option to view *special* characters. In addition to the Greek letters and math symbols, tucked under the number 2 key is the trademark symbol. If you like, strike the 2 key while you are holding down the Option key. The trademark symbol appears in the Key Caps text area.

Now that you know the trademark is made by pressing <Option-2>, you can close the Key Caps accessory by clicking in its close box. Because you only want to add a simple one-character symbol to the ACME Memo, it's easy to remember the keystrokes required to make it and just type them when you're back in the MacWrite document. If you were adding or replacing something more complicated, however, you could type it into the Key Caps text box, select it and copy it to the Clipboard for pasting into your document. This lets you use the item on the Clipboard throughout your document and eliminates the need for retyping the addition at every new location.

Move the I-beam to the end of the company name on the second line of text in the ACME letter. Click the mouse button to place the insertion point just after the period in "Inc." Now press <Option-2> to insert the trademark symbol. Other references to ACME in the memo are exempt from the trademark symbol requirement. One takes care of W.E. Coyote's legal responsibility.

Editing the MacWrite Way

As you were typing the ACME Memo into the document window, you probably noticed the mistake in the last line of the first paragraph. "Every one" should be one word, not two. To correct this, move the I-beam into the space between the two words. There are several ways to delete the stray space. You can either drag the I-beam across the space and then <Backspace>, or cut it to computer heaven, or place

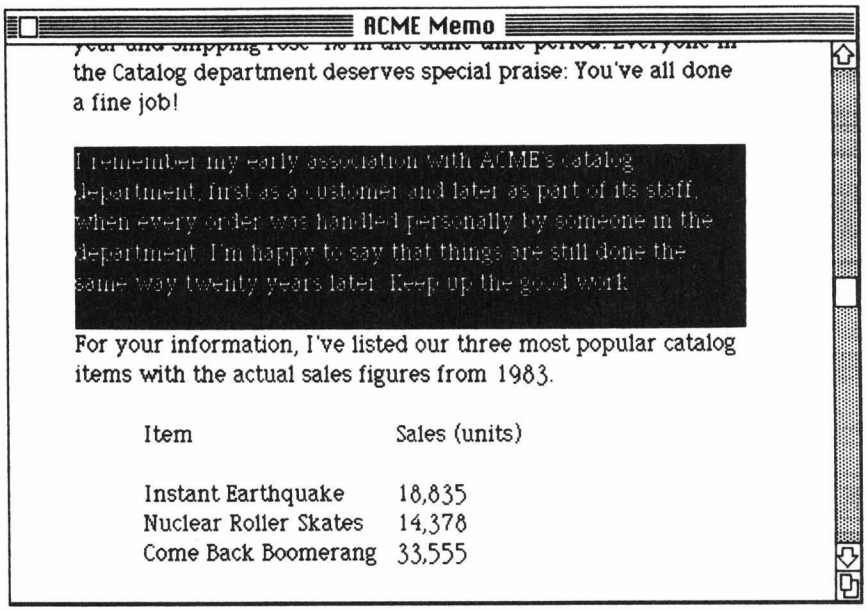
the insertion point just before the "o" in "one" and then hit <Backspace>. Though both these methods work, an easier, more accurate method is to place the I-beam over the space and double-click the mouse button. Double-clicking in MacWrite, you remember, automatically selects a single word. You can also double-click spaces between words to select them. Doing so saves you from dragging the I-beam. If you make a mistake when you delete, use the Undo Typing command from either the Edit menu or the keyboard (<Command-Z>) to recover your lost text. However you decide to do it, delete the space between "Every" and "one."

Using the Clipboard

As you know from using the Clipboard on the desktop and in MacPaint, the Clipboard doesn't care whether you place text or pictures on it. In fact, a version of a spreadsheet for the Macintosh even lets you clip numbers on the Clipboard for use as data in programs you write. In MacWrite, the Clipboard is the principal means of moving text within or between documents because it is the fastest, most efficient tool for the job.

No matter what you want to place on the Clipboard, it must first be selected and then either be copied or cut to the Clipboard through the Edit menu. Selected text that is removed with the Backspace key is not placed on the Clipboard. With this in mind, scroll down to the middle of the ACME letter by dragging the Scroll Box to the center of the scroll bar. The second paragraph in the letter doesn't really belong where it is. It would make more sense at the very end of the memo. Therefore, through the Edit menu you'll select and cut the paragraph by placing it on the Clipboard.

Of course, you'll want to cut it without leaving any stray blank lines between the first and third paragraphs, so selecting becomes a very important matter. To select the second paragraph, move the I-beam to the very beginning of it, just before the word "I." Now drag the I-beam downward, stopping only when the entire blank line between the second and third paragraphs is selected. Refer to the illustration for a visual description. The simplest way to include the blank line in the selection is to drag the I-beam to the very beginning of the third paragraph, just before the word "For."


ACME Memo
the Catalog department deserves special praise: You've all done a fine job!
For your information, I've listed our three most popular catalog items with the actual sales figures from 1983.
Item
Sales (units)
Instant Earthquake 18,835
Nuclear Roller Skates 14,378
Come Back Boomerang 33,555

Selected paragraph. Note the selection of the blank line between the two paragraphs.

To remove this selected block, slide the pointer to the Edit menu and select Cut. When you return to the document window, the selected block is now gone and there are no stray blank lines between the first two paragraphs. To verify that the block is safely tucked away on the Clipboard, go back to the Edit menu and select Show Clipboard. The Clipboard window should display the cut paragraph. Don't worry if the formatting of the paragraph seems changed or if there are parts of the paragraph cut off from view by the edges of the Clipboard window. All formatting from the original document is still preserved. The text has just been readjusted temporarily to fit within the confines of the Clipboard window.

Close the Clipboard window for the moment by clicking in its close box. Because the Clipboard's contents are volatile, you don't want to risk losing what you've placed there, though you could go about the rest of your editing at this point. It's always a good idea to paste the content of the Clipboard in its new location right away, even if you do no editing for the time being. This will ensure that your block is moved correctly and placed back into the document.

Leaving text on the Clipboard, especially a paragraph or more, invites disaster. Imagine accidentally cutting or copying something new to the Clipboard before you pasted the paragraph to its new location. Aside from being in a disagreeable mood for the rest of the day, you'd have to type in the lost text once more. In this case it's not a big deal. You can always look it up in the book. But if you were working with original writing, losing a block of text to carelessness could be an aggravating experience.

These words of caution having been stated, scroll to the bottom of the ACME Memo and place the blinking insertion point at the end of the last paragraph, just after the period that ends the sentence. Now hit <Return> twice to move the insertion point two full lines down. In order to keep the blank line you originally put between each paragraph, you have to start the pasted text at the beginning of the second line after the last paragraph. When you paste the text from the Clipboard, the text begins at the current position of the insertion point and continues in the document until the very end of the selection. Blank lines, if part of a selection, are also pasted into a document. Remember, you can't overwrite anything in a MacWrite document.

Move the arrow pointer to the Edit menu and select Paste. Instantly the contents of the Clipboard are copied to the document, beginning at the insertion point. Notice that the blinking insertion point is left two lines past the end of the pasted paragraph. This is because blank lines were selected and pasted with the moved paragraph. Strike the Backspace key twice to bring the insertion point to where you want it.

Using the Show Clipboard command, take a look at the Clipboard once more. The selected text is still on it. If you were working with a longer document and needed this information pasted at several locations, you could scroll through the document, place the insertion point at each new spot, and then paste. As mentioned before, it's a good idea to paste the selection on the Clipboard at each new location in the document as soon as you copy or cut. If you're not sure whether or not you want to move the selected block but know you will be using the Clipboard for further editing, paste a copy of your selection into the Scrapbook desk accessory for safekeeping. Then, if you decide you need it, you can simply copy it from the Scrapbook to the Clipboard. From the Clipboard you can paste it anywhere you want in your document.

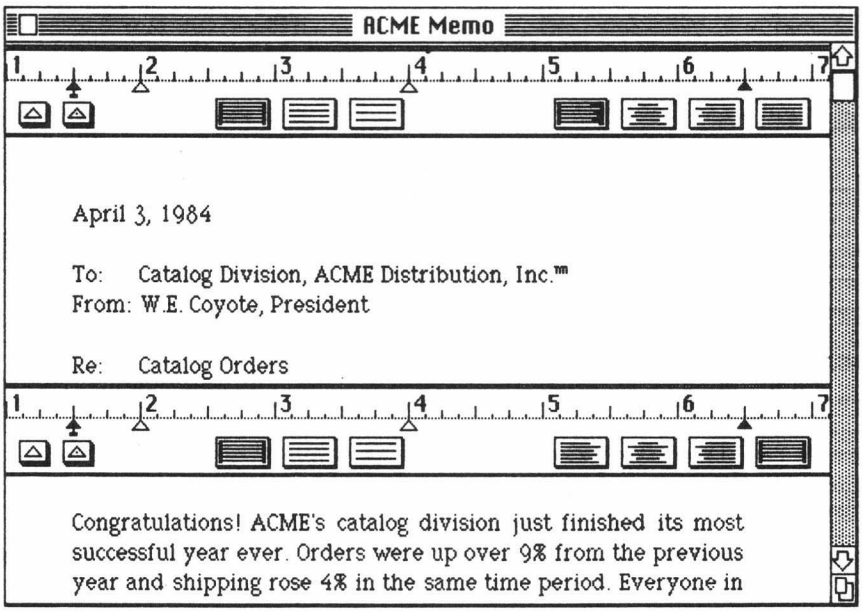
Inserting Rulers

Now that you've cut and moved a piece of text successfully with the Clipboard, you're beginning to see how flexible MacWrite really is. One of its other features lets you reformat anything from a single line to an entire document by inserting additional rulers anywhere in the text. You then adjust the settings on the new ruler in the same fashion you adjusted the settings on the original ruler. By inserting rulers you can change the format of existing text (which you will do here) or new text. The formats you set with rulers may even be selected, ruler and all, and copied to the Clipboard for placement elsewhere in the same document or within another document.

One formatting change that would greatly improve the appearance of the ACME letter is full-justification, which aligns both the right and left edges of the text evenly down the length of the page. Full-justification is most commonly seen in newspaper and magazine articles, which demand the most efficient use of space as well as easy readability. Until writing on computers with word processors became a reality, full-justification was merely a dream for typists. MacWrite makes full-justification a snap.

Scroll the ACME letter to the very top, so that the entire ruler is showing. Move the I-beam to the blank line between the last line of the heading (Catalog Orders) and the first paragraph. Click the mouse button to place the blinking insertion point at the very beginning of this line. From this point, you'll want to adjust the formatting so that both margins are aligned evenly. Move the pointer to the Format menu and scan the commands for a second. Inside this menu are seven commands you will use for reformatting by adding rulers, creating top and bottom margins for documents, and other page-formatting procedures. For now, you're only interested in the Insert Ruler command. If the insertion point is correctly placed on the blank line, select Insert Ruler.

Almost immediately, a ruler identical to the first one is inserted into the space just before the blinking insertion point. The first thing you should note about this new ruler is its settings: they are identical to the first ruler's settings. Whenever you insert a ruler into a document, its settings are exactly the same as the ruler immediately preceding it.


ACME Memo
April 3, 1984
To: Catalog Division, ACME Distribution, Inc.™
From: W.E. Coyote, President
Re: Catalog Orders
Congratulations! ACME's catalog division just finished its most successful year ever. Orders were up over 9% from the previous year and shipping rose 4% in the same time period. Everyone in

Rulers are inserted at the insertion point with the Insert Ruler command from the Format menu.

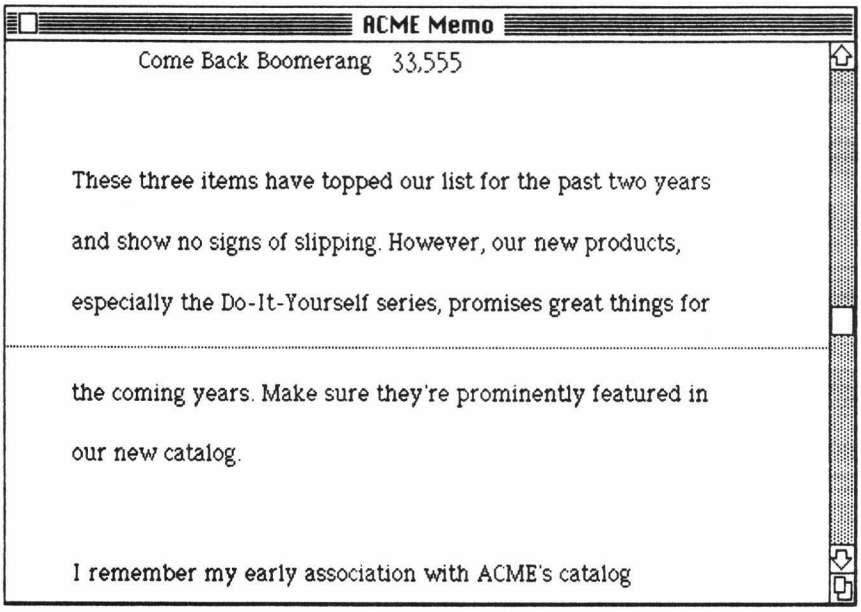
Changing the settings on this new ruler follows the same rules you learned at the beginning of the first section of this chapter. Both the left and right margin markers, the indentation marker, and the tabs move along the inch scale. Line spacing is set by selecting the appropriate box in the middle of the ruler. Justification is set by selecting the appropriate box on the right side of the ruler. Making new settings on an inserted ruler does not affect the settings on any other ruler in the document. Rulers affect the formatting of only the text that follows them.

Changing the Format

Now that the new ruler has been inserted, it's time to experiment with some formatting options. Each time you adjust a setting on the ruler, the text following it automatically reformats to reflect the change. This lets you scan the change, even scroll through the document and decide whether it's what you had in mind. If it's not, you can go to the Edit menu and select Undo Ruler Change to return to the previous format.

First, let's look at the line-spacing options on the ruler. Move the pointer to the middle line-spacing box on the bottom of the ruler and click the mouse button to implement one and a half line spacing. Scroll down a few lines in the document to look at the new format using the down arrow at the bottom of the scroll bar. Move the pointer back to the inserted ruler and click on the double-spacing box. Watch as the text that follows the ruler reformats again. Now scroll slowly down through the document. Though you expected the spacing between paragraphs to conform to the double- spacing (you saw that it did in the first section of this chapter), you might not have expected the two columns in the letter to do so as well. But each line of the table was made by pressing the Return key, which plants an invisible character into the MacWrite document. When you change line spacing, MacWrite looks for this character and formats accordingly.

As you continue to scroll down through the document, in the middle of the paragraph following the table you see a dotted line running across the window.


ACME Memo
Come Back Boomerang 33,555
These three items have topped our list for the past two years
and show no signs of slipping. However, our new products,
especially the Do-It-Yourself series, promises great things for
the coming years. Make sure they're prominently featured in
our new catalog.
I remember my early association with ACME's catalog

Dotted lines in MacWrite signal page breaks. Page breaks are never printed by the Imagewriter.

This line signals a page break, which means that the memo no longer fits on a single page—because of double-spacing—and is beginning a second page. The page-break line not only helps you to keep track of the length of your work, it also lets you see where pages will begin and end during printing. Once you've finished scrolling through the ACME Memo, scroll back to the inserted ruler and click the single-spacing box to return the memo to its original form. Now move the pointer to the four justification boxes at the bottom right of the ruler. The current setting, which is also the default, is left-justified text. The second box centers all text following the ruler line. Click on the center-justification box to select it and scroll down through the document.

Each line is centered between the left and right margins. As you continue to scroll down, you will see that the columns in the middle of the memo are also centered. Setting the format with the ruler affects everything in a document. Scroll all the way to the bottom of the document. Notice that the page break is gone: single-spacing brought everything back to one page.

Centering is a fine feature when used sparingly. Headlines or phrases that stand alone, away from the body of a paragraph, are attractive when centered. Notice, too, that centering places the insertion point in the middle of the document. In the current memo, it's located directly below the double-spacing box of the inserted ruler. As you type with center-justification, the insertion point slowly moves toward the right margin while the text creeps toward the left margin. You might find it easier to type your lines with full or left-justification and center them later. Typing with center-justification is a little awkward.

Scroll back to the inserted ruler and click on the third justification box to select right-justification. This lines the text evenly along the right edge of the document window. Look for the blinking insertion point directly below the inserted ruler. If you don't see it on the left side, look on the right side. It's right below the justification boxes. When you select right-justification, new text that you type into a document moves from right to left while the insertion point remains fixed on the right margin. Typing new text into a document with right-justification can be a little disorienting until you get the hang of watching the text move away from the insertion point. Scroll through the document once more and note that the columns are once again affected by the formatting and are right-justified.

Scroll back to the inserted ruler and click the last justification box to select full-justification. This will line up both margins neatly.

Full-justification usually produces a very attractive, readable document. My suggestion is that you use full-justification for all your important writing.

Scroll down in the document to look at the two columns and see how full-justification affects them. Surprisingly, they have not changed. Full-justification only realigns the text between <Return>s by inserting spaces within the lines to make the right edges straight. Because the columns are within the left and right margins, full-justification does not affect them.

Scroll back to the inserted ruler and make sure full-justification is selected. Otherwise, the settings on the inserted ruler should match the settings on the first ruler exactly. For the time being, don't worry about the inserted ruler in the document. Later on you'll learn how to hide the rulers from view. Too many of them are ungainly and obscure the document at hand. Also, don't worry about rulers taking up space in your document. Though they are displayed on the screen, MacWrite does not consider them part of the document and they are *never* printed out.

Inserting Columns and Text

The next pair of editing changes add text to the ACME Memo. In the first case you'll add a column to the table already present. Later, you will add a text fragment describing the column you added. Both changes involve techniques you are already familiar with: placing the insertion point, inserting and using rulers, etc.

Scroll down in the memo to the second paragraph, which begins "For your information." Move the I-beam to the blank line between the second paragraph and the titles of the columns. Click the mouse button to place the insertion point at the beginning of this blank line. Now move the pointer to the menu bar and open the Format menu. Select the Insert Ruler command. A ruler that's an exact duplicate of the preceding ruler drops into place.

Inserting a column into this table requires adding a regular tab and moving the current tab. Before adding the new column, let's experiment with the tab at the 4″ position. Move the pointer to this tab and drag it over to the 5″ position. Release the mouse button to place it there. The second column aligns itself with the new 5″ placement. Drag the tab around a few more spots along the ruler scale. Each time you release the mouse button, the column moves into a new position. When you've finished experimenting, drag the tab back to its original 4″ mark to restore the position of the second column.

Now move the pointer into the tab well, drag a tab out to the 5″ mark and place it by releasing the mouse button. Nothing in your document should have changed. Move the I-beam to the beginning of the second column, right before the word "Sales," and place the insertion point by clicking. You can probably guess what's going to happen. You will type the heading for the new column at the insertion point, then hit the Tab key to push the last column over to the 5″ tab marker. Each time you add to the table, you will follow the same procedure: place the insertion point, type the new text, and hit <Tab>.

If the blinking insertion point is just before the "S" in "Sales," then type the heading of the column you are inserting:

Projection <Tab>

"Projection" lines up with the 4″ tab marker and Sales (units) lines up with the new 5″ marker after you hit the Tab key. Now move the I-beam down to the next line in the table, placing the insertion point directly before the number 18,835. Type the projection figure:

15,000 <Tab>

Again, the new number lines up with the 4″ tab and the old number lines up with the 5″ tab.

Repeat this process two more times to complete the addition to the table.

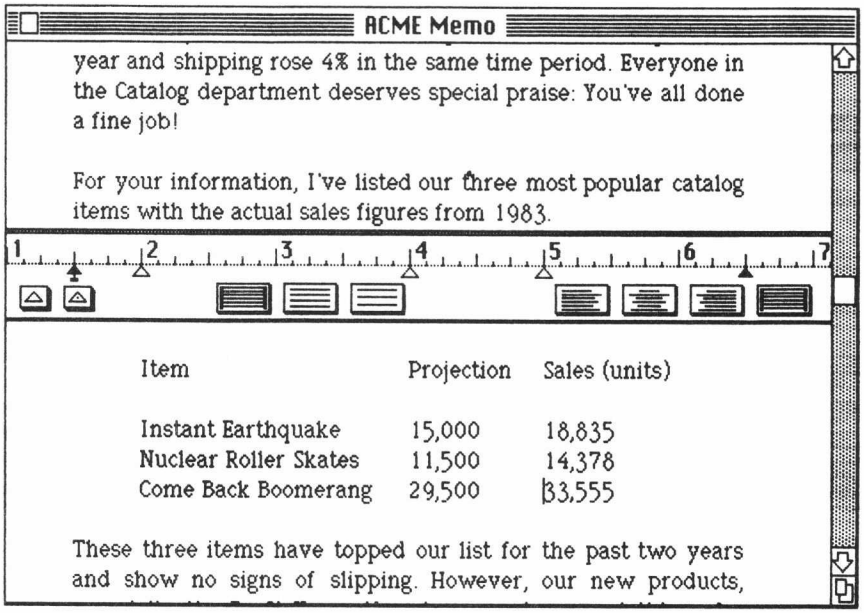
Slide the I-beam just before "14,378" and click to place the insertion point. Type:

11,500 <Tab>

Move the insertion point to the last line of the table, just before "33,555" and type:

29,500 <Tab>

That's it! You've just added a complete column to a table. Any time you need to make an addition or change to a table in a MacWrite document, following the above procedure will see you through the entire process. Deleting columns from tables works similarly, except that you select one item at a time from the column to be deleted and hit the Backspace key to clear it out.


ACME Memo
year and shipping rose 4% in the same time period. Everyone in the Catalog department deserves special praise: You've all done a fine job!
For your information, I've listed our three most popular catalog items with the actual sales figures from 1983.
1
2
3
4
5
6
7
Item
Projection
Sales (units)
Instant Earthquake
15,000
18,835
Nuclear Roller Skates
11,500
14,378
Come Back Boomerang
29,500
33,555
These three items have topped our list for the past two years and show no signs of slipping. However, our new products,

Final addition to columns.

Now for one last touch that will make the table more attractive: setting the title of each column off from the table with a new type style. Drag the I-beam over the table titles, starting at the "I" in "Item" and stopping just after the ")" in "(units)." When selected, go to the Style menu and scan the pull-down menu. Bold is a possibility. Select it and look at the title line. Bold looks all right but seems a little heavy for the rest of the memo. Select Undo Style Change from the Edit menu to return to Plain Text. Of the other styles, Italic looks too washed-out and Outline and Shadow too out-of-place. Only Underline seems appropriate. Select Underline from the Style menu or press <Command-U> on the keyboard to the same end. Click anywhere in the document to see the underlined titles without the black selection block around them.

Because the additional column was added, you, as W.E. Coyote, must insert a phrase to explain what it means. Because the table is referred to already in the second paragraph of the ACME Memo, this is a logical place to add a line about the new column. Move the I-beam to the second paragraph and place the insertion point just before the "t" in "the." Type the following phrase beginning at the insertion point. Don't worry about the inserted ruler getting in the way of your typing.

Their 1982 sales projections and <Space>

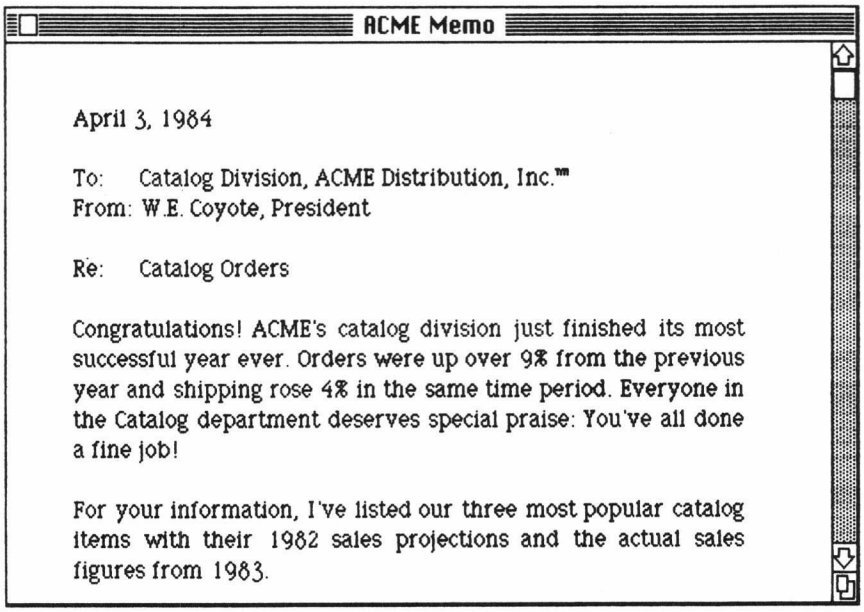
Halfway through the word "projections" the ruler jumped down a line to make room for the third line of the paragraph. Even rulers obey the MacWrite insertion rules and cannot be written over. After all, if you were able to write past rulers, you might be typing into different ruler settings and hence a different text format.

Scroll back to the very top of the memo and take a quick look at everything you've done. Aside from fixing one or two typing mistakes, you've moved text around by placing it on the Clipboard and then pasted it into new locations, you've placed rulers within a document to alter the format, you've changed the style of text, and you've combined several MacWrite and Macintosh techniques for inserting a column into a table. Even though the ACME letter is a single page long, it has taught you volumes about MacWrite. All that's left is to tidy the memo up and save a final version to the disk.

Hiding Rulers

Though inserting rulers is one of MacWrite's most important features, too many rulers in a single document decreases readability significantly. Once you've formatted a section of a document, why bother to display the ruler at all? You really only need rulers for new text you are typing or for additions and corrections. MacWrite's designers recognized this and built a command into the application that lets you hide the displayed rulers. Hiding doesn't remove the rulers, nor does it erase their format settings. It merely places them out of view, so you can read through your document normally. And because MacWrite's designers made nearly every command reversible, you can display the hidden rulers with a click on the mouse button. What could be simpler?

To hide the three displayed rulers in the ACME Memo, open the Format menu and select Hide Rulers. Your screen goes blank a second and then the memo reappears, minus the rulers but still perfectly formatted.


ACME Memo
April 3, 1984
To: Catalog Division, ACME Distribution, Inc.™
From: W.E. Coyote, President
Re: Catalog Orders
Congratulations! ACME's catalog division just finished its most successful year ever. Orders were up over 9% from the previous year and shipping rose 4% in the same time period. Everyone in the Catalog department deserves special praise: You've all done a fine job!
For your information, I've listed our three most popular catalog items with their 1982 sales projections and the actual sales figures from 1983.

Choose Hide Rulers from the Format menu to remove the rulers from sight in a MacWrite document. Choose Show Rulers to display them again.

Scan the entire memo using the up and down arrows at the ends of the scroll bar. Every change you made is intact. If you need to look at the rulers to see how a particular section of this, or any, document is formatted, go back to the Format menu and select Show Rulers. The rulers jump back into the memo instantly. Remove them again with either Hide Rulers or Undo Show Rulers from the Edit menu.

Saving Your Effort

After all the time you've spent on the ACME Memo, it's time to save once again. After making sure you have hidden the rulers (they will Save with the document), go to the File menu and select Save. After the disk drive quiets, you will have a brand-new copy of the memo stored on the Write-Paint disk.

Printing Your Effort

Having gone to all this trouble, you are most likely curious to see exactly what this letter looks like when printed out with the Imagewriter. The letter will appear exactly as it does in the MacWrite window.

Assuming you have saved the ACME Memo to the Write-Paint disk and still have it up on the screen, there are a few preliminaries to go through before printing the document. Depending on what type of paper you are using in your Imagewriter, you may want to change the length of a printed page.

Page Setup

Go to the File menu with the pointer and select the Page Setup command. A MacWrite dialog box will appear on the screen listing several Paper options and three Orientation options. The Paper options let you select one of four different sheet sizes you can use with the Imagewriter.

The Page Setup box. Click in the appropriate circles to make changes. Confirm your choices by clicking the OK button.

The default choice is US Letter, which is selected with a small black dot in the center of the check box. US Letter is the standard 8½" x 11" paper that's used for typing. Unless you tell MacWrite otherwise, it always assumes you are using this size of paper.

The remaining Paper options let you select from among three of the other most common sizes of paper. US Legal is the 8½" x 14" legal paper. A4 Letter is a standard European paper size, 8¼" x 11⅔". International Fanfold is an international standard paper size, 8¼" x 12". Selecting any paper size requires placing the arrow pointer over the hollow circle next to your choice and clicking the mouse button.

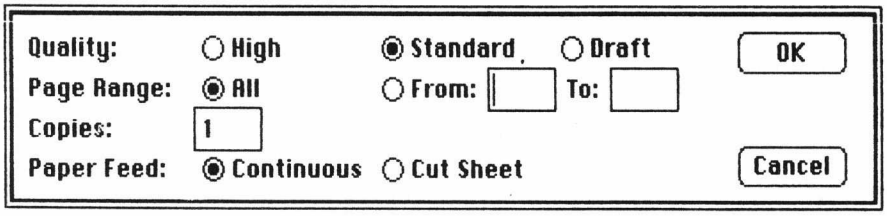
The last line of the Page Setup dialog box refers to Orientation. This controls the printing of the text on the page. The default setting, Tall, prints text in the usual manner with the top line at the top of the page. Tall Adjust, the second Orientation option, prints the same as Tall with the difference that it corrects for any MacPaint pictures you have inserted into your MacWrite document and correctly proportions them. Use this option when you paste MacPaint items into MacWrite. The last Orientation option is Wide, which actually prints the text sideways on the page, with the top line of the document down the right side of the page. If you use Wide and your document needs more than a page to print out, it will continue the remaining text on the next page.

Unless you change paper frequently or have an urge to print out your writing sideways, you probably won't go to the Page Setup dialog box very often. In fact, you don't even have to go to it to print. It's introduced here as part of the overall printing process. If you do use Page Setup, your selections are saved with the document you are editing. Therefore, if you send an invitation to several friends in Europe and select A4 Letter paper to print out your document, each time you open that document, the A4 Page Setup setting is opened with it. Please note that changing the Page Setup for one document in no way affects other documents that might have different settings. Neither does it affect new documents, which always open with the default US Letter and Tall options.

Though Page Setup is used primarily for readying a document to be printed, its paper options do affect the page breaks you see in the MacWrite document window. If you type a three-page letter to a friend with the default Page Setup settings and then decide you want to print using legal paper, changing the paper option from US Letter to US Legal reformats your document to the new length. Where once you had two dotted-line page breaks, you might now only have one. Keep this in mind and don't go crazy looking for a lost or extra page after changing the Page Setup Paper setting. Because you want to print out the ACME letter on regular paper, close the Page Setup dialog box by clicking inside the Cancel button on the bottom right of the box.

Print

In most instances you will move directly from editing a document to printing it out, without going through the Page Setup dialog box. Printing requires that you select the Print command from the File menu. Do so now if you are finished looking at Page Setup. Selecting Print displays a dialog box with several options for selecting the quality of your printout, the number of pages you want to print, the number of copies you want printed, and the type of paper (perforated computer paper or single sheets).



The Print box. Click in the appropriate circles to make changes. Type in page numbers from the keyboard for the From: and Copies options. Confirm your choices by clicking the OK button.

Printout Quality

The first line of the Print box offers three printing qualities: High, Standard, and Draft. Draft prints fastest of the three. However, choosing Draft limits you to text only, (no MacPaint pictures), one font (sans serif), one size (nine point), and only three styles: Plain, Bold, and Underline. Draft is best used for quickly printing preliminary versions of reports and the like, where quality is of little concern. You can edit these drafts, make your changes in the document, and then print out a final version utilizing all the MacWrite fonts, styles, sizes, and MacPaint pictures. Even though Draft does not print MacPaint pictures or different fonts and sizes, you need not eliminate them from your documents. Draft simply ignores all the fancy fonts, sizes, styles, and any MacPaint pictures.

Standard, the second Quality option, prints out all the MacWrite fonts, styles, sizes, and MacPaint pictures in a document. Because it

has to do so much work, it is considerably slower than Draft printing. It takes about ninety seconds to print each page of a document. By comparison, Draft prints out at a maximum rate of one-hundred-twenty characters per second, which comes to about fifteen seconds per page (assuming there are two thousand characters on an average page).

Standard produces what the *MacWrite* reference manual calls "screen-quality printing," which means that the same resolution of characters and graphics you see in the MacWrite window will print out on the paper. Standard is suitable for most printing tasks when used with a good ribbon.

The last Quality option, High, produces the highest-quality printouts. High supports all the fonts, sizes, styles, and MacPaint pictures in a MacWrite document. High approximates so-called letter-quality printing, which makes printouts from computers that look as if they were typed on an expensive typewriter. The price you pay for selecting High is, of course, speed. Because High fills in each character, almost eliminating the dots that make up the printed characters, it takes a full one-hundred-sixty-five seconds to print out a single page. That's nearly twice as long as Standard printing. If you plan to print out a ten-page paper with High, be prepared to set aside at least thirty minutes.

The relative merits of each print quality should be obvious. Draft quality is for quick printing of what you have written so you can edit while you're away from your Macintosh. The difference between Standard and High printing is fairly marked. High quality printing produces striking documents with robust characters. Standard quality produces the same image with less definition. It's much easier to make out the dots that compose each character in Standard than it is in High. However, High has a tendency to overprint, producing very dark, dense characters. Depending on the particular font, these characters can be unreadable. Standard printing and a good ribbon should see you through most printing situations. Quality settings are saved with the document to which they apply.

What Pages to Print?

The second line in the Print box refers to the pages in your document that you want to print. The default setting is All, which prints from the first to the last page of your document, no matter what the length. If for some reason you only want to print a range of pages, you can do so by clicking the circle next to From. Then you simply type the number of the first page to be printed in the first box, at the blinking insertion point, hit the Tab key to advance the insertion point to the second box, and type the page number of the last page to be printed. Using this Page Range option lets you print one page or a series of pages within a document (enter the same number in both the From and To boxes). Unlike the Quality settings, which are saved with the MacWrite document, Page Range settings always revert back to All after each printing.

How Many?

MacWrite lets you print any number of copies of a document. Simply type into the Copies box the number of copies you want. The default is always 1. To change the number of copies, move the arrow pointer to the Copies box and click to place the insertion point. Use the Backspace key to remove the 1 and type the new number. Multiple copies are printed back to back, with no interruption from either the Macintosh or the Imagewriter. Note that you cannot make multiple copies with Draft printing, only with Standard and High printing.

Paper

The last thing MacWrite needs to know before running your printout is the kind of paper you are using. The Continuous specification assumes you are using fanfold or roll paper, more commonly called computer paper, which is perforated and connected sheet-to-sheet in layered reams. This is the paper you feed through the sprocket pins in the back of the Imagewriter. Cut Sheet paper, on the other hand, is simply single sheets of paper that you feed into the printer one at a time. You'll want to use Cut Sheet if you are printing on a letterhead or other formal stationery. Selecting Cut Sheet causes the Macintosh to

stop printing between pages so you can insert a new sheet of paper. You use the mouse to tell the computer you're ready to print each new page. I'll assume you are using computer paper for now, but I will fully describe the printing process with single sheets at the end of this section.

Once you've made the appropriate selections in the Print box, click the OK button to initiate printing or click the Cancel button to ignore Print completely. Assuming you want to go on, click OK. If you have selected either High or Standard printing, the disk drive will go to work and a box will appear on the screen with the message:

> Now saving printed copy to disk.

As the ACME Memo is only one page long, the drive will work for just a few seconds and then the Imagewriter will start printing. Make sure that the Imagewriter power is turned on and that the Select light is lit. If you try to print with the Imagewriter power or the Select light turned off, a dialog box will ask you to check the printer. If all is well, the printout should begin, accompanied by a dialog box on the screen informing you that <Command-.> cancels the printout. Use this option if you've begun to print the wrong document, or if there's a problem with the paper or ribbon. If <Command-.> doesn't stop the printout immediately, you can always turn off the Imagewriter's power in an emergency. Once the printout is complete, the dialog box disappears from the screen and the document in the window is ready for viewing and editing once more.

Examining the Final Product

After your copy of the ACME letter is printed, remove it from the Imagewriter by tearing it along the perforation between sheets. Take a few moments to examine the print quality and the way the formatting looks on the printed page. True to the *MacWrite* reference manual's word, Standard printing does produce "screen-quality" images. Compare the printout with the document in the MacWrite window. The screen version of the document has only slightly higher resolution. Look at a lower-case o on the screen and compare it to the same character on the printout. Though the dots composing the o on the

screen are still visible, they are completely connected, making a fairly dense character. The printed version of the character offers slightly less density—the dots are readily distinguishable—yet the character is extremely well defined and readable.

Direct your attention now to the overall look of the letter in its printed form. Twelve point Geneva plain text looks infinitely better than the regular ten point faces used by most typewriters (as does 12 point New York if you haven't switched to Geneva while using version 1.0 of MacWrite). The relatively narrow margins you set on the intial ruler restrict the width of the text to 5", which looks very nice in a memo of this sort. Other writing requires wider margins that fill the page with text. If your printer paper is correctly placed between the red lines on the Imagewriter's roller shaft (the metal bar that holds the paper against the rubber roller), then you should have a full 1½" left and right margin. The top line of the memo, the date, should be one full inch down from the top of the paper. Had you not added those lines, the printout would have started with the date about a quarter of an inch below the top of the page. Later in this chapter, you will learn how to use MacWrite's unique top and bottom margin tools, called footers and headers, which let you customize the top and bottom of the printed page with page numbers, text, etc.

MacWrite's High-Q

Standard printing from MacWrite and the Imagewriter is obviously a great step beyond the plain-looking typewriter faces you are probably accustomed to. However, Standard printing might not always fulfill your needs. If you want to send a very formal-looking business letter or an invitation, you might try High quality printing, which looks as close as you can get to professional typesetting without spending a fortune. Assuming you haven't closed the ACME Memo, move the pointer back to the File menu and select Print once more. This time, select High from the Quality options by placing the arrow over the hollow circle next to High and clicking the mouse button. Click the OK button to begin the printout.

MacWrite will inform you through a dialog box that it's saving a printed copy to the disk as before. Once saved, another dialog box informs you of the <Command-.> option to cancel the printout while the Imagewriter goes to work. Unlike Standard printing, which jumps right into the memo, High printing slowly advances the paper through the roller one line at a time. Once printing actually starts, each line is passed over at least four times before the printer moves on to the next one. Each pass fills in the characters completely. Here is where you lose the most time. It should take about a minute and a half to print out the memo completely. Be patient.

Every time you see the Imagewriter slowly advance through blank lines you might be tempted to grab the roller knob and wind the paper through. The paper is advanced slowly so as not to unseat it by sliding it around the paper path of the printer. High quality printing produces letter-quality printouts and in the process executes letter-quality line feeds to advance the paper. The results are surely worth the wait.

Examining High Quality

Once your printout is complete, remove the paper from the printer and take a look at the character quality. Unlike Standard printing, there are almost no visible dots in any character. Because High quality printing fills each character so thoroughly, it has a tendency to blacken over areas requiring high resolution. Compare the lower-case e and a from the Standard printout to the High quality printout. Chances are that the High quality letters are almost blacked out in the hollow spaces. Another good character for comparison is the percent symbol, %, in the first paragraph of the memo. Standard printing produces a hollow character, whereas High quality printing nearly fills it in.

Don't Resist the Draft

Though you really don't have any need for a Draft version of the ACME Memo, you might as well make one to get an idea of how Draft differs from Standard and High quality printing. Choose Print from the File menu once more and click in the Draft circle of the Print box. Click the OK button to initiate the print. Unlike printing with Standard and High quality printing, Draft does not first save a copy of the document to the disk. Instead, Draft jumps headfirst into the job. You can still cancel the printout with the <Command-.> option, though.

Unlike printing with Standard and High quality, Draft is fast. The print head prints both forward and backward on the page, and executes rapid line feeds. The entire ACME Memo should print out in twenty to thirty seconds. When it's finished, tear the paper from the printer. Draft produces a very legible printout that closely resembles a typewritten page.

The only odd features of draft printing are the way it spaces words on a page and the way it handles some formatting. If you look closely, the spaces between the words on the page are not even. I don't know the reason for this, but be prepared and watch out for punctuation marks printed right next to words, without a space in between. Also, note that the right margins are not fully justified, even though you selected full-justification with the MacWrite ruler in the document. Again, it's another quirk of Draft printing. Even the updated version of MacWrite and the Finder don't seem to correct this problem. They do, however, seem to make it slightly less noticeable.

Printing with Single Sheets

If you don't have computer paper or you want to print out the final copy of your writing on letterhead or high-quality cotton fiber paper, you have to feed one sheet at a time into the printer. When each page is printed, the computer will ask you to insert the next sheet and will then wait until you tell it to start. Options from the Page Setup box are set for single sheets in the same fashion they are set for continuous paper. Because you're probably using US Letter paper, there's no need to call the Page Setup box. You can go directly to Print from the File menu.

Preparing the Printer

Setting up your printer to use single sheets is very simple. Turn on the printer with the ON/OFF switch. If there's no paper in the printer, the red Paper Error light will go on. Pull the release lever on the left side of the printer case forward, so that it points toward the front of the printer. This lets you move the paper around the roller freely. Flip up the clear plastic shield on the carrier cover and take a piece of 8½" x 11" paper and insert it into the crevice behind the roller. Once the paper is pushed in a little bit, the Paper Error light will go off. Lift the metal roller shaft away

from the roller. Feed the paper through the path by turning the roller knob on the right side of the printer. When the paper is fed through evenly, snap the metal roller shaft back to hold the paper against the roller, remembering to line the paper up between the red lines on the roller shaft. Close the clear carrier cover shield and press the Select switch on the printer to ready it.

Now go to the File menu and select Print. The familiar box will appear, asking you to set the quality, page range, etc. Set the quality to Standard and click the Cut Sheet Paper Feed option at the bottom of the box. Click the OK button to begin the printout.

After saving a printed copy to the disk, the Macintosh will beep and display a new box with the following information:

> **Please insert the next sheet of paper.**
> **Click OK to continue, Cancel to terminate printing.**

You're one step ahead of the Macintosh. The paper is already inserted. Click the OK button and watch the printout. You can stop it by pressing <Command-.> at any time. When the page is printed, pull it out of the Imagewriter and look at it. Just like computer paper. If you print out a document with several pages, the Macintosh will stop at the end of each page and present the above dialog box, letting you continue or stop the printout.

Printing Paraphernalia

If you do quite a bit of writing with MacWrite and save several versions of your work to disk, you might find printing them all out can be confusing. It's generally easier to edit on the screen a few times before printing out a paper copy with Draft quality. You can fix most of the glaring errors in your work right on the computer. More subtle errors, such as those of meaning, are easier to find when you work with paper.

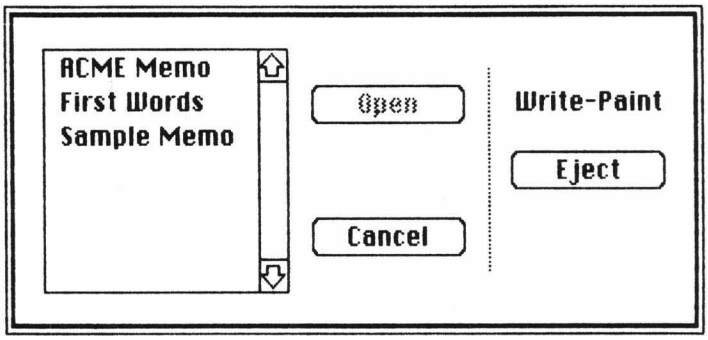
If you are writing a long piece, fifty pages or so, and have saved it in ten-page sections to disk, it's usually a good idea to print out each section before you start a new one. This lets you refer to previous sections without having to interrupt your new writing by closing the document to call up an earlier one.

A final note about printing has to do with ribbon quality. Fresh ribbons are a must. Worn-out ribbons ruin your eyes with their dull characters, and they produce unattractive printouts. However, don't retire your used ribbons at the first sign of old age. I've found that older ribbons, which produce washed-out gray characters with Standard or Draft printing, produce impeccable High quality documents. Because these ribbons are worn and have less ink on them, the multiple passes

made by the Imagewriter when High quality printing is being done doesn't darken characters too much. In fact, High quality printouts made with older ribbons look better than those made with brand-new ones.

Apple's Sample Memo—Opening a Document from MacWrite

Once you've finished editing, printing, and otherwise changing the ACME Memo, save the final version and close it by clicking in its close box. This sends you back to the empty MacWrite desktop, where only the File and Edit menus are available. (Search, Format, Font, and Style are unavailable when a document is not open.) Go to the File menu and select Open. This is the command you use to open existing MacWrite documents from the Write-Paint disk or the data disks. Open displays a box that lists MacWrite documents (and only MacWrite documents) on the left side of the screen.



The MacWrite Open box for selecting documents to open. Click the Eject button to insert another disk. With two disk drives, click the Drive button to scan the documents on a data disk. Select a document by clicking on its name.

The center of the box has an Open button and a Cancel button. Open becomes available once you select one of the MacWrite documents for viewing. On the right side of the Open box is the name of the current disk, Write-Paint in this case, and an Eject button, which lets you remove the current disk and insert a data disk. If you have the external disk drive, there is also a Drive button that lets you select the disk in the other drive.

You should see at least three MacWrite documents listed in the scroll list: First Words, ACME Memo and Sample Memo. If you've saved other versions of these documents to the disk, you might have more titles listed. If you've studiously copied the MacWrite sample documents to the data disk for safekeeping, you might have fewer titles. If there are more than seven MacWrite documents on a disk, the scroll list will have a scroll bar and a scroll box. Scroll the document titles as you would scroll a MacWrite window.

Opening a document requires selecting the appropriate name from the list and clicking the pointer on it with the mouse button. Selecting in this manner is exactly like selecting from the disk window when you're using By Name or By Date through the View menu on the desktop. Once you select a document, the Open button becomes active. Select the Sample Memo document. To open it either click the Open button or use your tried and true shortcut: double-click on the document name.

Looking at Sample Memo

When the Sample Memo document appears in the MacWrite window, take a moment to look through it. Aside from the single ruler at the top, the entire memo is text. You can see that there are several areas that require additions or changes and there is at least one formatting error (items 1 and 2 need to be made into separate paragraphs). Apple has included this memo for the practice editing session in the "Editing a Memo" section of Chapter 1 in the *MacWrite* reference manual. You've already learned the same points covered in the manual: inserting text, deleting text, using the Clipboard, inserting and setting rulers, and printing out the document. The discussion of each topic, especially printing, is covered much more thoroughly in this book. However, the "Editing a Memo" session makes an excellent quick review and gives you another sample document to work with. Edit Sample Memo, if you like, following the guidelines in *MacWrite* or experimenting on your own.

Sophisticated MacWrite—More Tools of the Trade
Moveable Formats

In the course of your writing there will be times when you need to switch back and forth between formats within the same document. As you've already seen, you can easily insert rulers at any place within a MacWrite document to change the format of new text you're about to type or existing text you want to reformat. Rulers make formatting so simple and immediate that you have the luxury of changing your mind regularly about the way you want your document to look. Because rulers are so easy to use, you will no doubt find yourself experimenting with a variety of exciting formats within the same document, and whenever you need to change the format of your document midstream, you will be tempted to grab the mouse and select Insert Ruler from the Format menu. There is an easier way, however, as MacWrite lets you combine rulers, selecting, and the Clipboard to store formats and place them anywhere in a document with a click of the mouse button.

Suppose you're in college and one of your many writing assignments is to prepare a paper about an influential piece of English literature. Part and parcel of a carefully written critical paper are quotes from the piece itself. When writing something like this, it's often necessary to set off the quotes from the body of your work by indentation, and perhaps by using different line spacing.

In the course of writing, you will undoubtedly alternate the format of your document between the regular text and the special format you choose for your quotes. MacWrite makes this simple to do by letting you store a ruler on the Clipboard—just as you would a piece of text or a MacPaint picture—and then paste it at a new insertion point.

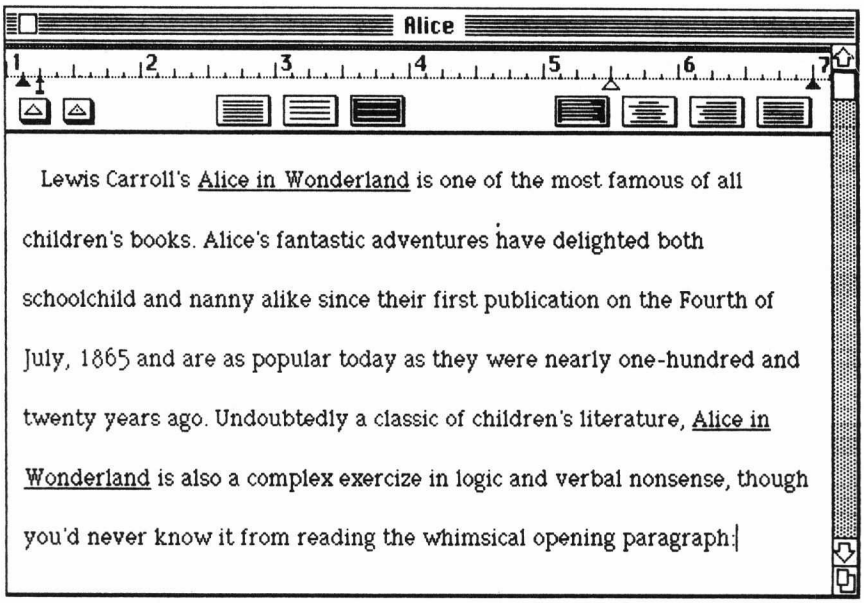
Alice in MacWrite

You should now have an empty MacWrite desktop screen with only the Apple, File, and Edit menus available. Choose New from the File menu to open a fresh MacWrite document. After your untitled document appears in the window, move the pointer to the ruler for changing some of the default format settings. First drag the indentation marker, currently set at 1⅛″ along the inch scale, by its small hanging block and place it at the 1¼″ mark by releasing the mouse button. Next select double-spacing by clicking in the rightmost line-spacing box in the middle of the ruler. Leave the other default ruler settings alone.

Now that you've set the format for the text that will occupy the body of your paper, it's time to type in a sample paragraph of original work, to be followed by a quote from *Alice's Adventures in Wonderland* (referred to by its more familiar name, *Alice in Wonderland*, in the document). As before, type exactly what is reproduced below. Remember that the keys or keystrokes named between hairpins are to be pressed, not typed.

> Lewis Carroll's <Command-U> Alice in Wonderland <Command- P> is one of the most famous of all children's books. Alice's fantastic adventures have delighted both schoolchild and nanny alike since their first publication on the Fourth of July, 1865, and are as popular today as they were nearly one hundred and twenty years ago. Undoubtedly a classic of children's literature, <Command-U> Alice in Wonderland <Command-P> is also a complex exercise in logic and verbal nonsense, though you'd never know it from reading the whimsical opening paragraph: <Return>

This is the first time you've worked with double-spacing as you typed new text into a document. It obviously leaves quite a bit of free space between lines and makes the text very readable, unlike other line spacings, which pack the lines closely together, creating a page that might intimidate your reader.


Alice
Lewis Carroll's Alice in Wonderland is one of the most famous of all children's books. Alice's fantastic adventures have delighted both schoolchild and nanny alike since their first publication on the Fourth of July, 1865 and are as popular today as they were nearly one-hundred and twenty years ago. Undoubtedly a classic of children's literature, Alice in Wonderland is also a complex exercize in logic and verbal nonsense, though you'd never know it from reading the whimsical opening paragraph:

Passage from Alice document double-spaced.

Also new in typing the above paragraph was the use of MacWrite's keystroke shortcuts to change the style of the text. Instead of having to remove your "mouse hand" from the keyboard and select a new style from the Style menu, the keystrokes let you type without interruption, changing styles as often as is necessary. The keystrokes used to invoke the different styles work in exactly the same way as selecting a new style with the mouse. One style remains in effect until you select another. This is why you type <Command-U> to call underlining for the title of the book and then select Plain text at the end of the title with <Command-P>.

Using the keyboard for style changes during typing is made especially easy because of MacWrite's mnemonics of the Command key in conjunction with P for Plain Text, B for Bold, I for Italic, U for Underline, O for Outline, S for Shadow, H for Superscript, and L for Subscript. These are the same keystrokes used in MacPaint.

Fitting the Quotes

Now that the beginning text of your paper has been typed into the MacWrite window, it's a good time to save it before you insert a new ruler for formatting quotations. Move the pointer to the File menu and select Save. Because this is the first time you have saved this document, you will be prompted to name it. Type in Alice for the name and hit <Enter> or <Return> to initiate the save. When you've returned to the document window, you should see the name Alice in the title bar.

The blinking insertion point should now be at the beginning of a new line after the paragraph. marked by the indentation marker. Hit <Return> once more to place the insertion point yet another line below the first paragraph. Move the pointer to the Format menu and select Insert Ruler. As is always the case with MacWrite, the ruler you insert is an exact duplicate of the preceding ruler: in this case, the first ruler.

Selecting an appropriate format for the quotations within your paper is again a matter of context and taste. Because you want to set the quotations off from the body of your writing, they should be formatted in an instantly recognizable way. Simply changing the line spacing to one and a half is not enough. You need to make the change more dramatic. Therefore, you'll not only reduce the line spacing of the quotations to single-spacing, you'll also narrow the margins, fitting the quotes within a scant four inches across the middle of the page. To further distinguish the quotes, you will full-justify them along both the left and right margins.

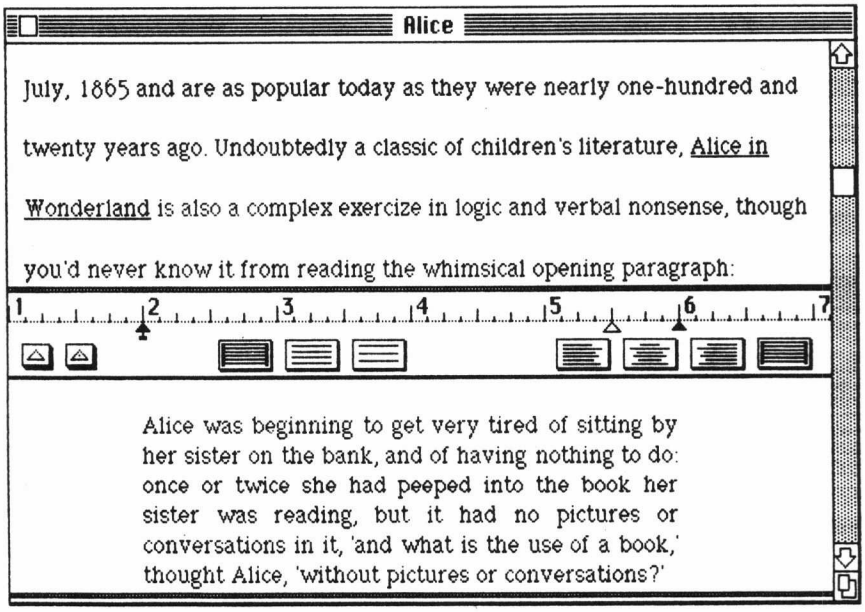
Move the pointer to the newly inserted ruler and change the left margin by dragging the left margin marker, the black triangle at the 1⅛" mark, along the inch scale to the right and placing it at the 2" mark by releasing the mouse button. Drag the indentation marker, currently at the 1¼" position, to the 2" mark also. This eliminates the indentation for the quotations. Next, drag the right margin marker from the 7" position to the 6" position and place it. The four inches between the left and right margin will hold the body of your quotation. Change the line spacing by clicking on the single-spacing box along the middle bottom of the ruler. Finally, change the justification by selecting the full-justification box, the rightmost box along the bottom of the ruler.

You won't use the tab at the 5½" mark at all in this example, so you can ignore it or remove it. To remove it, place the tip of the arrow pointer over the hollow triangle and drag it to the bottom of the ruler. When the tab marker becomes bold, release the mouse button and the tab marker will disappear. This technique, incidentally, is the quickest way to remove unwanted tabs from the ruler.

Now that the format for the quotes is set, type in the first quote, again following the conventions used before.

> Alice was beginning to get very tired of sitting by her sister on the bank, and of having nothing to do: once or twice she had peeped into the book her sister was reading, but it had no pictures or conversations in it, 'and what is the use of a book,' thought Alice, 'without pictures or conversations?'

Hopefully, *Macintosh: The Appliance of the Future* lives up to Alice's editorial musings. Before you go on, select Save from the File menu and store this new material in the Alice document on the disk.


Alice
July, 1865 and are as popular today as they were nearly one-hundred and
twenty years ago. Undoubtedly a classic of children's literature, Alice in
Wonderland is also a complex exercize in logic and verbal nonsense, though
you'd never know it from reading the whimsical opening paragraph:
1 2 3 4 5 6 7
Alice was beginning to get very tired of sitting by
her sister on the bank, and of having nothing to do:
once or twice she had peeped into the book her
sister was reading, but it had no pictures or
conversations in it, 'and what is the use of a book,'
thought Alice, 'without pictures or conversations?'

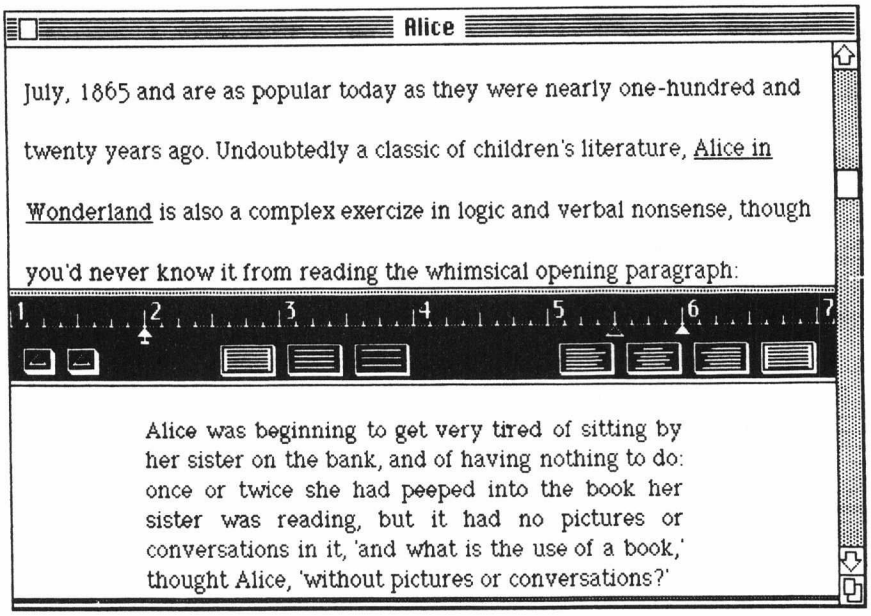
Inserted ruler setting format for quotes in Alice document.

As you typed this passage from *Alice in Wonderland*, the text conformed automatically to the new ruler settings, making it into a perfectly shaped block of text. To see how it would look with the ruler out of the way, select Hide Rulers from the Format menu and scroll to the quotation in the document. Notice how the new formatting with the inserted rulers makes the passage stand out from the rest of the text. If you follow the same formatting conventions throughout this work, your reader will never be confused between your writing and the quoted material.

If you've finished scanning the Alice document, select Undo Hide Rulers from the Edit menu (you may also select Show Rulers from the Format menu) to display the rulers once more.

Copying the Quote Ruler to the Clipboard

After the rulers have been restored to the document window, scroll to the inserted ruler setting the format for the quote. In order to copy a ruler, it first has to be selected. Selecting rulers is done by placing the arrow pointer anywhere on the inch scale and clicking once on the mouse button. Move the pointer to the inch scale and click. Like all other selected items you've encountered on the Macintosh, the selected ruler becomes black.


Alice
July, 1865 and are as popular today as they were nearly one-hundred and
twenty years ago. Undoubtedly a classic of children's literature, Alice in
Wonderland is also a complex exercize in logic and verbal nonsense, though
you'd never know it from reading the whimsical opening paragraph:
1
2
3
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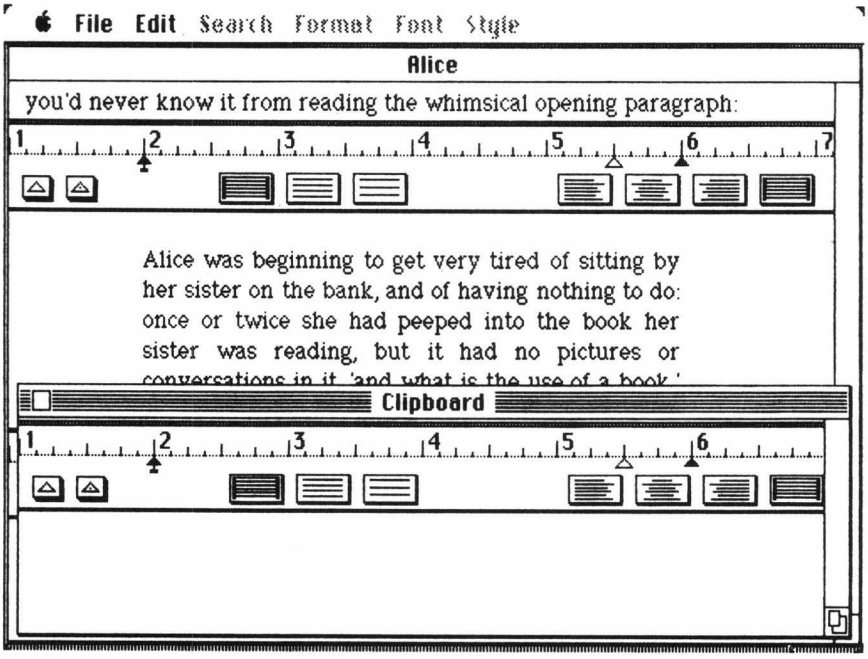
6
7
Alice was beginning to get very tired of sitting by
her sister on the bank, and of having nothing to do:
once or twice she had peeped into the book her
sister was reading, but it had no pictures or
conversations in it, 'and what is the use of a book,'
thought Alice, 'without pictures or conversations?'

Select rulers by clicking anywhere on the inch scale. Selected rulers may be cut, copied, or pasted and may even be placed into the Scrapbook like any text or picture.

Because the ruler is now selected, it can be edited in several different ways. A ruler or rulers can be deleted from a document—so that they no longer set any format—either by pressing the Backspace key or by selecting Cut from the Edit menu. As before, Cut places the deleted item on the Clipboard while <Backspace> does not. Try this with the selected ruler in the Alice document. Press the Backspace key once and watch the ruler vanish and the text underneath it reformat according to specification on the previous ruler (the first one) in the document. Select Undo from the Edit menu or press <Command-Z> to replace the ruler and the format. Make a special note of the difference between removing rulers with Cut or <Backspace> and Hide Rulers from the Format menu. Hide Rulers only hides the rulers from view, neither deleting the rulers nor affecting formatting in any way. Deleting a ruler with Cut or <Backspace> actually removes both the ruler *and* its formatting from the document. For obvious reasons, the first ruler in a document cannot be removed with Cut or <Backspace>.

Having learned how to remove rulers from a document, it's time to look at copying them for repeated use in the same document. Make sure the inserted ruler that set the format for the quoted passage is visible and selected, then go to the Edit menu and select Copy to place a duplicate of the selected ruler on the Clipboard. Next, select Show Clipboard from the Edit menu to view the captured ruler. As you can see, the ruler is indeed in the Clipboard window. Don't worry if you can't see the entire ruler in the Clipboard window. It's there. Close the Clipboard window by clicking in its close box.


File Edit Search Format Font Style
Alice
you'd never know it from reading the whimsical opening paragraph:
Alice was beginning to get very tired of sitting by her sister on the bank, and of having nothing to do: once or twice she had peeped into the book her sister was reading, but it had no pictures or
Clipboard

Selected ruler displayed in the Clipboard window.

With the quote ruler safely stored on the Clipboard, it's time to continue your writing and return to the text format. Because MacWrite stores only one item at a time on the Clipboard, when you want to change the format of your document after the quotation, you have to insert a new ruler and change its settings to match the first ruler in the document. This seems to break the continuity of MacWrite, but it is the easiest way to change formats. What would be ideal for this situation is

a ruler well, much like the tab wells, in which you could store several different rulers and pull out the one you needed in an instant. However, even without such a well, MacWrite makes the process of changing formats in the middle of a document a fairly simple and straightforward matter.

Changing Formats and Pasting a Ruler

Place the blinking insertion point at the end of the typed quotation. Hit <Return> twice to drop the insertion point two full lines. Choose Insert Ruler from the Format menu and change the settings on this new ruler to conform to those of the first ruler: left margin at 1⅛", indentation marker at 1¼", right margin at 7", double-spacing, and left-justification. Only the indentation marker and double-spacing differ from the default settings.

With the format set for your text, type the following passage into the Alice document:

> **This fanciful opening almost belies the witty logic games that make up the bulk of the book's conversations, such as when Alice watches the Cheshire Cat disappear into a sly grin and says to herself, <Return> <Return>**

Now you want to add another quotation. Instead of inserting a new ruler, simply select Paste from the Edit menu or use its keystroke shortcut, <Command-V>. Instantly a new quote ruler jumps into place with the insertion point waiting below the ruler at the 2" mark. Now type this last quotation into the Alice document:

> **'Well! I've often seen a cat without a grin,' thought Alice; 'but a grin without a cat! It's the most curious thing I ever saw in my life!'**

By pasting the quote ruler into the document, you were immediately able to type the quotation and forgo adjusting the markers.

Once the Alice document is complete, select Save from the File menu to store the finished product on the disk. For the moment, leave Alice in the MacWrite window.

Other Uses for a Copied Ruler

Using rulers placed on the Clipboard while you are typing new work into a MacWrite document, as above, can save you time by storing a frequently used format for pasting into the document in an instant. As long as you don't cut or copy something else to the Clipboard, the ruler remains there, waiting for you to call it. This would seem to preclude editing with the Clipboard in your document. After all, you don't want to lose your copied ruler. But you can edit with the Clipboard as you write and simply reselect and copy the appropriate ruler to the Clipboard once you need it again. This frees you from editing with only the Backspace key.

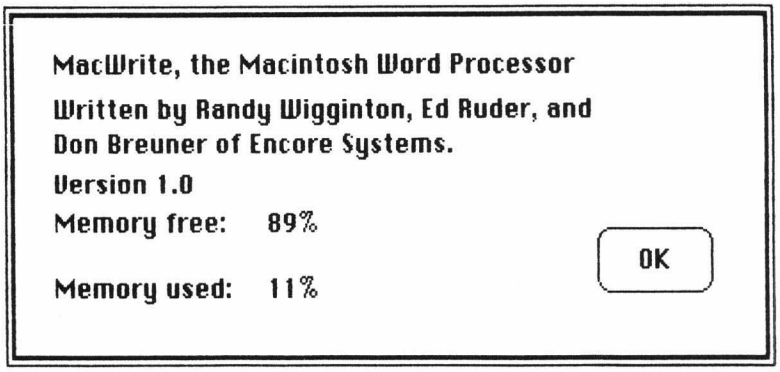
One of the more powerful uses of a ruler stored on the Clipboard is editing a draft of a completely written document. Without having to balance original writing with editing, editing a draft of a document lets you concentrate more on formatting and style. Using a ruler stored on the Clipboard, you can instantly change the format of a section of a document with a single paste. If you then need to insert another format, you can copy that ruler from the document and paste it into a new location. Editing formats in this fashion is very fast and efficient.

Using the Desktop Accessories in MacWrite

Some of the most helpful tools you have at your disposal in MacWrite are the desk accessories located in the Apple menu. These aids—like the Scrapbook, Alarm Clock, Note Pad, etc., all of which you've seen before—can be used within almost any Macintosh application. In MacWrite, they are particularly helpful for storing important pieces of text, special ruler formats, writing notes for outlines, and even determining the amount of memory your MacWrite document takes up in the Macintosh. Each of these accessories makes using MacWrite that much easier and adds a special dimension to an already excellent application.

How Big, MacWrite?

The very first accessory located within the Apple menu is About MacWrite, which displays the names of the authors of MacWrite, the version of the program (this book is based on version 1.0 and version 2.20), and the amount of free and used memory within the Macintosh. Assuming you haven't closed the Alice document, move the pointer to the Apple menu and select About MacWrite. A box appears on the screen listing the above information. Though it's nice to know who wrote the program and the release number, the last two lines of About MacWrite, Memory Free and Memory Used, are what concern us.



About MacWrite from the Apple menu displays the amount of free space left in the Macintosh. The numbers reflect a percentage of approximately 35K.

Unless you've altered the Alice document substantially, your About MacWrite box will list 10% of used memory and 90% of free memory. Memory Free and Memory Used list the percentage of random access memory used by the current MacWrite document (Alice, in this case) and the percentage of remaining memory. When the percentage of free memory drops below ten, you can add about one full page of text before MacWrite warns you that you're running out of memory. Once there is no more free memory, any attempt to add to the document causes MacWrite to beep and display a warning box that lets you Undo the last action—typing, pasting, whatever—that caused the overflow. Closing About MacWrite is accomplished by clicking the pointer on the OK button or pressing <Enter> or <Return>.

Where Did All the Memory Go?

Because MacWrite stores the entire current document in the Macintosh's RAM, the lengths of your documents are limited by the amount of free memory in the computer. According to *Apple 32: Developer's Handbook*, an Apple publication listing technical features of the Macintosh and Lisa computers, the application space—computer lingo for free random access memory—of the Macintosh is 85K or 85,000 characters of information. Once you turn on the Macintosh and insert a disk, this is the amount of free memory available in the computer.

You might well wonder what happened to the 128K that the Macintosh comes with. How did you lose 43K right off the bat? Nearly half of that 43K—21K—is used to control the screen display. As mentioned before, each pixel or dot on the screen is controlled by one bit within the Macintosh memory. Because there are 175,104 pixels, the Macintosh requires 175,104 bits to control the screen display. There being 8 bits to a byte of information, this translates to about 21,000 bytes or 21K. The remaining 22K of used memory is divided between the system heap (16K), which houses the desk accessories, among other things, and the Pascal library (6K), which feeds certain applications on the Macintosh that are written in the Pascal programming language.

Figuring the Limit

Because applications like MacPaint and MacWrite also occupy random access memory, there is less than 85K available within most applications. MacWrite is about 55K in size (you can check this from the desktop by selecting Get Info for the MacWrite application icon) and when opened by double-clicking is loaded into the free 85K. Though this would seem to mean that the amount of free memory in MacWrite is around 32K, it's actually closer to 35K because the entire MacWrite application is not loaded into memory all at once. Less frequently used features, such as extra rulers or top and bottom margins, remain on the disk until you call them from MacWrite. This is why the disk drive goes to work occasionally when you select an item from one of the pull-down menus.

Thus, once you're ready to create a MacWrite document, you are working in the confines of about 30K of free space. Depending on the formatting and content of your document (the number of quotations, margins, tabs, etc.), you are limited to a maximum document length of about ten single-spaced pages and between fifteen and twenty double-spaced pages. MacWrite documents that contain MacPaint pictures are considerably shorter, as most pictures are in the 5 to 10K range.

Ten to twenty pages is certainly enough space for your personal and business letters and smaller reports, but might not be enough if you plan to write a short story or novel. Of course, the solution to the length limit is to break your writing into ten or fifteen-page documents and save each section under a unique though not too imaginative name, such as Chapter 1, Chapter 1A, Chapter 2, etc. Breaking your document files down like this makes writing and editing a much easier project anyway.

Memory Full

In the course of using MacWrite there are three conditions when the memory of the Macintosh is full and MacWrite cannot complete the operation you requested. In every case, MacWrite presents a box on the screen informing you of the full memory and asks you to click either the OK button to proceed or the Cancel button to terminate the command or action.

The first occurs when you attempt to insert or type text into a document. Normally, MacWrite stores a copy of the paragraph or line being changed so that you may Undo Typing to return to the original. If the memory full condition prevents MacWrite from making a copy, the copy will be discarded and your typing will not be Undoable.

When cutting or copying, MacWrite tries to store the previous contents of the Clipboard so that a cut or copy is Undoable. If maintaining the previous contents of the Clipboard requires more than the available memory, MacWrite does not save the previous contents of the Clipboard. If you proceed with a cut or copy in this situation, it is not Undoable.

Finally, if a paste operation requires more than the available memory, the contents of the Clipboard will be moved, not copied, to the MacWrite document. After this, the Clipboard is empty and you cannot Undo the paste.

Should a MacWrite document become too large for *any* operation to occur, MacWrite presents a box informing you of the situation and lets you save the document and then quit MacWrite altogether. Of course, you should refer frequently to About MacWrite from the Apple menu to avoid situations such as this.

Using the Scrapbook

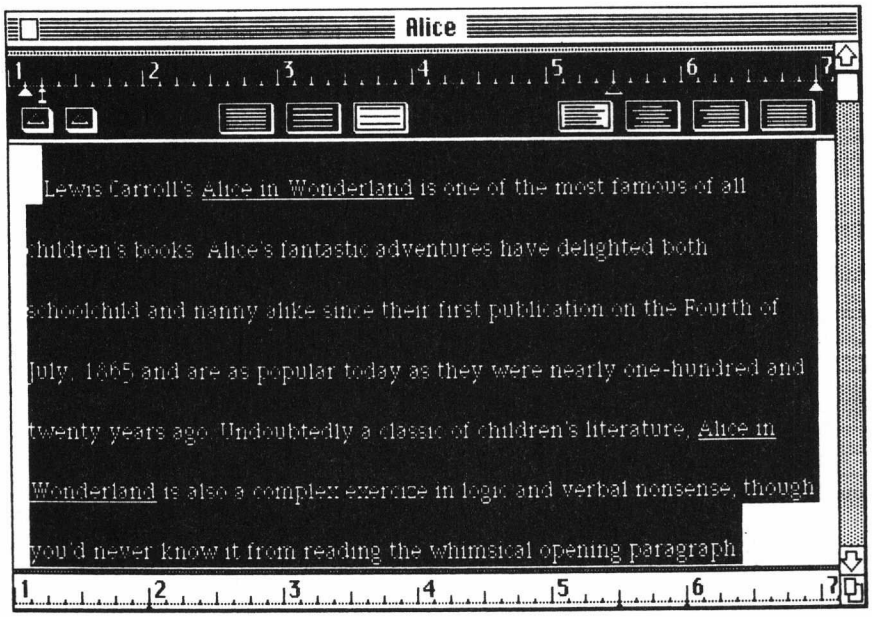
If you worked through this book's chapter on MacPaint before starting the current chapter, then you used the Scrapbook for retrieving previously stored pictures (like the fish and robot) and storing your own work. The Scrapbook holds both text and pictures simultaneously and is the perfect place to store text or formats from MacWrite.

Close the About MacWrite box if you haven't done so already. Keep the Alice document open in the MacWrite window. Move the pointer to the Apple menu and select Scrapbook. Once the Scrapbook window appears on the screen, page through its contents using the horizontal scroll bar. In addition to anything you might have placed there on your own, there should be five items: one text item describing the Scrapbook and four pictures. Close the Scrapbook by clicking in its close box.

Turn your attention once again to the Alice document in the MacWrite window. Scroll to the very top of the document by dragging the scroll box to the top of the scroll bar. To illustrate how you can store both text and a ruler in the Scrapbook, you'll select the first ruler and the initial paragraph of the Alice document and place them in the Scrapbook for safekeeping.

In order to select this chunk of the Alice document, move the I-beam so that it follows the colon directly after the end of the first paragraph. Click the mouse button to place the blinking insertion point there. Instead of dragging toward the top of the window to select the paragraph and the ruler, move the pointer so that the arrow is on the inch scale. Hold down the Shift key on the keyboard and click the mouse button once. Immediately, the text between the pointer and the insertion point becomes selected. You can use this selecting shortcut

throughout MacWrite when you want to select large portions of a document. Simply place the insertion point at the beginning or end of your selection, scroll to the end of the selection and click the mouse button. All text, rulers, and pictures (if any) are automatically selected.


Alice
Lewis Carroll's Alice in Wonderland is one of the most famous of all
children's books. Alice's fantastic adventures have delighted both
schoolchild and nanny alike since their first publication on the Fourth of
July, 1865 and are as popular today as they were nearly one-hundred and
twenty years ago. Undoubtedly a classic of children's literature, Alice in
Wonderland is also a complex exercise in logic and verbal nonsense, though
you'd never know it from reading the whimsical opening paragraph.

Rulers and text may be selected together and edited with the Edit menu commands and placed into the Scrapbook.

Once the text and ruler are selected, choose Copy from the Edit menu to place a duplicate of the selection on the Clipboard. Now go back to the Apple menu and select Scrapbook. When the Scrapbook window appears on the screen, select the Paste command from the Edit menu to place the contents of the Clipboard into the Scrapbook. After the disk drive quiets, the first item in the Scrapbook window is the initial paragraph of the Alice document. Though there is no sign of the selected ruler in the Scrapbook window, it is present, and will reappear when you copy or cut it from the Scrapbook to the Clipboard. Selected rulers do not appear in any text item in the Scrapbook. You can store a ruler by itself in the Scrapbook; however, it does not appear in the Scrapbook window. In its place is the message: "(This item has no text or picture.)"

Another thing to notice about the selected text placed into the Scrapbook is the absence of underlined text for the title *Alice in Wonderland*. Whenever a portion of a MacWrite document is pasted into the Scrapbook, all font, style, and size attributes are eliminated from the Scrapbook window. However, *all* font, style, and size attributes are preserved with the item in the Scrapbook and are pasted with the item into a MacWrite document. Though the title "Alice in Wonderland" is not underlined in the Scrapbook window, if you cut or copy this item to the Clipboard and then paste it into a MacWrite document, the underlines, along with the ruler, font, style, size, and format, will appear.

Close the Scrapbook for the moment by clicking in its close box. When you return to the document window, the first ruler and the initial paragraph in the Alice document should still be selected. Click anywhere within the window to get rid of the selection. Move the pointer to the Edit menu and select Show Clipboard. The block you just placed into the Scrapbook should still be on the Clipboard and should be displayed in its window. Drag the Clipboard window by its title bar up toward the top of the screen, so that it is almost flush with the document window title bar. Resize the Clipboard window using the size box at its lower right-hand corner. Now pull the base of the Clipboard window toward the bottom of the screen so that it almost completely covers the Alice document window. When you release the mouse button and the Clipboard window has a chance to refresh itself, the ruler and text within it are displayed exactly as they appeared in the Alice document, underlines and all.

In general, when you cut or copy something to the Clipboard in MacWrite, all font, style, and size attributes are preserved and displayed, as are any rulers. The only exception to this is when you cut or copy a piece of a MacWrite document to the Clipboard and then quit MacWrite, returning to the desktop. If you then select Show Clipboard on the desktop, the text of the item will appear in the standard system font, 12 point Chicago, and no rulers are displayed. Like the Scrapbook, however, both the rulers and the font, style, and size of the text are preserved and are displayed once you re-enter MacWrite and view the Clipboard or paste into a document. In short, it's impossible to lose your formatting from either the Clipboard or Scrapbook.

One final item about the Clipboard has to do with placing a single ruler (and only a ruler) on the Clipboard and then quitting MacWrite to return to the desktop. If you select Show Clipboard from the desktop Edit menu, instead of seeing the ruler you will see only the phrase "(Custom Clipboard)," much like you saw the message "(This item has no text or picture.)" when you pasted a ruler into the Scrapbook. Rest assured that your ruler is intact and will reappear when you return to MacWrite.

Taking Notes with the Note Pad

When you use an item like the Scrapbook inside MacWrite, it almost becomes an integral part of the application itself. You can place all your important passages and formats there for use whenever necessary. In some sense, the Scrapbook acts like an extended version of the Clipboard, holding not just a single item, but everything you decide to place in it. Though the Scrapbook is crucial to many tasks in MacWrite, there is no handier accessory than the Note Pad, which lets you jot down important thoughts, reminders, etc., for use within MacWrite, the desktop, or other applications.

No matter how you organize your thoughts for writing, whether you use an outline or work freeform, there are always times when you realize the arrangement of your work could be better. Most improvements consist of rearranging and adding to your thoughts. As you write further and further into your subject, you see relationships that were not apparent at the outset and that are better explained in an order different from the original. In the course of preparing this book, I worked out an extensive outline listing, step by step, the topics I wanted to cover. Once into the writing of the book, though, it became apparent that some of my organization needed reworking. Whenever this happened, I called up the Note Pad from the desk accessories. Then I typed in some quick notes to myself regarding the organization of my writing and also some notes prompting me to look for a particular piece of information in one of the Macintosh or application reference manuals. At the end of nearly every writing session with the Macintosh, I reviewed the notes I had written down for myself in the Note Pad and went about editing the changes into a new draft.

If there are any stray open windows like the Clipboard or Scrapbook covering the Alice document window, close them by clicking in their close boxes. Now move the pointer to the Apple menu and select Note Pad. The disk drive will go to work for a few moments and then display the Note Pad in the middle of the screen. Unless you have added to the Note Pad, the first page should be a message left by Apple. Whether the message is there or not is irrelevant. As you've seen on the desktop, the Note Pad lets you type and edit text on each of its pages. Moving between pages is done by clicking on the dog-ear: Advance to the next page by clicking on the turned-up corner of the top page and return to the preceding page by clicking on the bottom left corner, under the dog-ear. Unfortunately, the Note Pad is rather limited in some of its functions. Text does not, for example, automatically wrap around to the next page if you fill a page. Instead, the Macintosh rudely beeps every time you try to enter a letter from the keyboard. To type on the next page you have to use the mouse to advance the page and then resume typing. This is a little awkward, but it is manageable.

Because the text on the Note Pad can be edited with the usual mouse selection techniques, you can cut, copy, and paste between the Note Pad and any Macwrite document via the Clipboard. You cannot paste a MacPaint picture into the Note Pad. When I occasionally fill all eight Note Pad pages, I select and cut each page to the Clipboard and then paste the contents into a MacWrite document. Then I simply print out the MacWrite document for reference. All notes you type into the Note Pad are saved in the Note Pad File, located in the System Folder. This insures their existence between sessions with different applications on the Macintosh.

Managing Windows

While you were using the desktop accessories, the Alice document window was open. MacWrite permits you to open and leave as many windows as you wish on the desktop. Of course, you can only work in one at a time. Because the Macintosh screen is small, leaving too many open windows lying around becomes confusing and interferes with writing.

For example, if you want to leave the Clipboard window on the screen but work in the document window, you can simply click anywhere in the document window to activate it and return to your writing or editing. The Clipboard then vanishes beneath the document window. If you want to go back to the Clipboard to see what's on it, you must click in it to activate it. To do this, you might have to resize the document window. Shuffling windows like this in MacWrite can become a problem. It's usually much simpler to close windows when you're finished with them. If you need them again, they're one click of the mouse button away. In general, it's a good idea to keep the MacWrite document window stretched across the full expanse of the screen, letting you view as much text as possible.

Instances when you will want to leave windows on the screen, underneath the document window, do occur when using the Search menu windows for finding and replacing text, and when creating top and bottom margins with the Format menu's header and footer. You will use these windows soon.

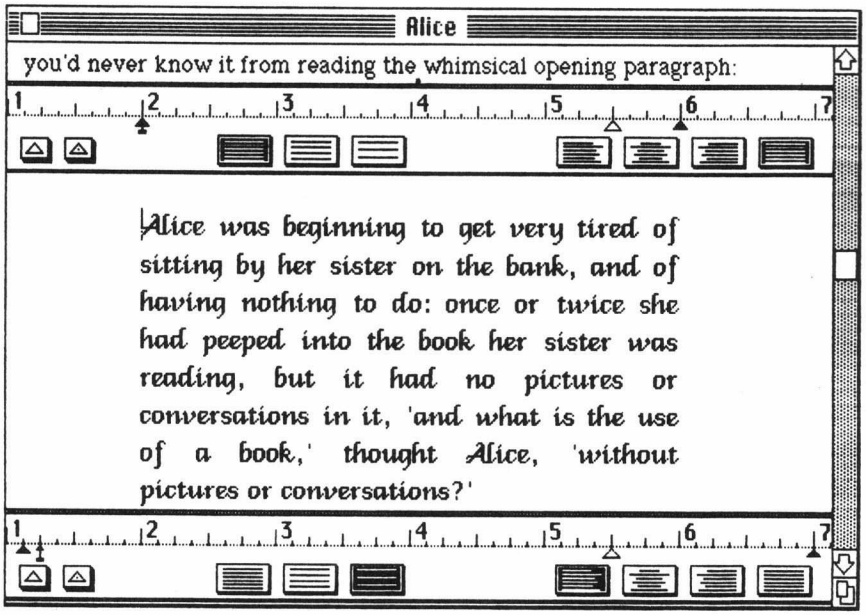
Editing Alice with Style

The Alice document should be on the screen. Scroll through it to see that it's intact and that the rulers are hidden. If they're not, make them disappear with Hide Rulers from the Format menu.

Scroll back to the top of the document and place the blinking insertion point at the very beginning of the document by moving the I-beam just ahead of the "L" in "Lewis" and clicking. Move the I-beam down to the end of the first paragraph and hold down the Shift key while you click once on the mouse button. This selecting shortcut, which you saw a few pages back, makes selecting large blocks of text a snap. Now move the pointer to the Style menu and scan the commands in the pull-down menu. Though all the styles and sizes are available, there is no check by any of the styles because there is more than one style in the black selected block. The bulk of the text is Plain, but the book title is underlined at two points. Since all the text in the selection does not share a common style, no check is placed.

After viewing the Style menu, move the I-beam back to the Alice document and place the insertion point just before the "A" in "Alice" at the start of the first quotation. Scroll down a little in the document if necessary to view the entire quotation. Drag the I-beam to the end of

the passage to select it. The formatting changes you made to separate the quotations from the body of the document certainly worked, but MacWrite offers an entire menu of different fonts for highlighting other parts of your document.


Alice
you'd never know it from reading the whimsical opening paragraph:
Alice was beginning to get very tired of sitting by her sister on the bank, and of having nothing to do: once or twice she had peeped into the book her sister was reading, but it had no pictures or conversations in it, 'and what is the use of a book,' thought Alice, 'without pictures or conversations?'

Alice document quote in 14 point Venice.

Slide the pointer to the Font menu and select Geneva if you're using the New York font. After the disk drive spins for a moment, the selected text in the quotation appears in the new font. Geneva is sufficiently different from New York to be recognizable but is not too offbeat to make a pastiche of styles on the page. Leave the quote selected and go back to the Font menu to view some other fonts in the document window. Select Monaco and watch as the selected block assumes the new font. Also notice the text of the quote automatically reformats to accommodate the new font. Because the different fonts have letters of different widths, the same block of text that occupies five lines as New York might take up six lines as Venice. Notice, too, the invisible quote ruler sets the format for the quotation when it reformats.

To return to the fonts, Monaco is a fine, if austere, font that doesn't really add a new dimension to the Alice document. Go back to the Font menu and select Venice, the Macintosh's cursive font. Venice certainly looks different than any of the other fonts you have used so far. If you want to get a look at Venice without the black selection around the quote, click the I-beam anywhere in the window to remove the selection. When you change styles and fonts again, be sure to select the quote using the selection shortcut above. One problem with the Venice font is that it is too small to read clearly. You should remember from the MacPaint section that the Style menu recommends the best sizes for a particular font by outlining the size in the Style menu. Open the Style menu and scan the sizes at the bottom half of the pull-down menu. As you can see, the recommended size for Venice is 14 point, two points larger than the current 12 point size indicated by the check.

Make sure the quote is selected and change the size of the quote by selecting 14 point from the Style menu. Because this is a larger size, the quote reformats and occupies a larger area in both the document window and on the printed page. Remember, what you see on the screen is what will print out. As was the case for font changes, size changes reformat to the specifications of the nearest ruler in the document. Both vertical and horizontal line spacing are changed to fit the largest-sized character on the line. Thus, if you have both 24 point and 9 point letters on the same line, the line spacing will be formatted as if the entire line were composed of 24 point characters.

By selecting the recommended size for Venice, the text of the quotation becomes very readable and attractive. Scroll down in the document to the second quotation, then place the blinking insertion point at its very end by moving the I-beam there and clicking the mouse button. Now to select the entire quotation, move the I-beam to its beginning and click the mouse button while holding down the Shift key to select the entire quote. Go back to the Font menu to see which font is checked. You just changed a block of text to Venice, so you might assume Venice is checked, but it's not. New York is selected because the text of the selected quote is in the New York font (Geneva will be selected if you wrote Alice with it). If you look in the Style menu you'll find that 12 point is selected instead of 14 point. Again, this is because the Font and Style menus reflect the selected text.

You can use this property of the Font and Style menus in another way that will determine the font, style, and size of the text at the insertion point. If you edit a document and make several font and style changes and then place the insertion point at the end of a document, you might wonder what will come out as you type. You can spare yourself suspense by using the Font and Style menus to see which font, size, and style are checked. These are the settings for the new characters you

will type. Throughout MacWrite, text you type at the insertion point assumes the style, size, and font of the character immediately preceding the insertion point. The character may be a letter, a number, or a symbol from the keyboard. It may also be a Return, Tab, or space. There are such things as an Athens Tab, a Venice space (cursive space?), and even a San Francisco Return.

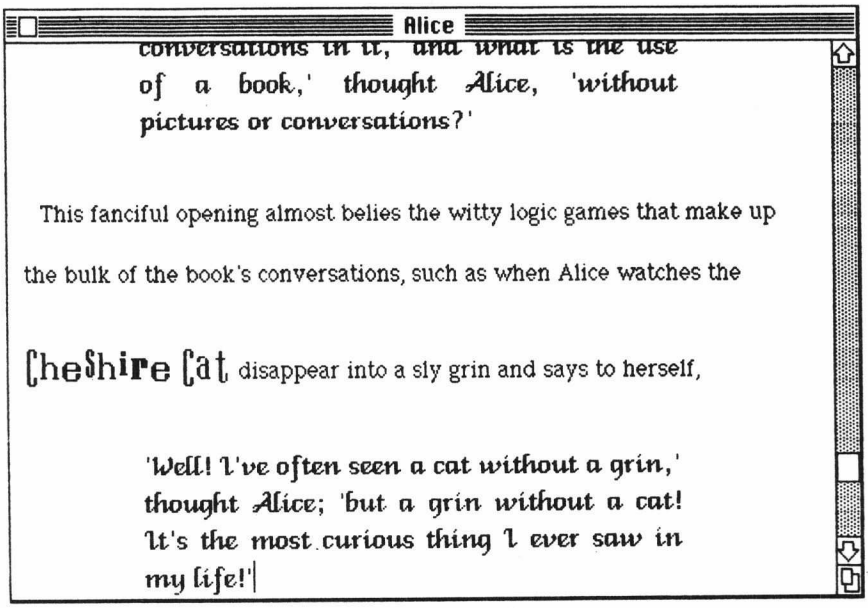
Assuming the second quotation is selected, go to the Font menu and select Venice once more. After the quotation changes to the new font, go to the Style menu and select the 14 point size. This completes changing the quotes. Scroll back to the top of the Alice document and direct your attention to the two references to the title *Alice in Wonderland* in the initial paragraph. Underlining signifies to a typesetter the text should be italicized. Underlining, for this purpose anyway, becomes obsolete in MacWrite, because it has its own italics in the Style menu.

Position the I-beam over the title *Alice in Wonderland* in the first sentence of the Alice document. Drag the I-beam across the entire underlined phrase to select it, but be careful not to select the spaces before or after the title. Before you change *Alice in Wonderland* to italics, you must first change it to Plain Text and then select italics. Otherwise, the title will be both underlined *and* italicized. Select Plain Text from the Style menu or by pressing <Command-P> on the keyboard. Once the title is in plain text, select Italic from the Style menu or use the <Command-I> keystroke. When the title is italicized, it might seem there is no blank space between the "d" in "Wonderland" and the next word in the sentence. The space is present, but because of the tilt of the italicized letters, it's not readily discernible. You can confirm that the space is present by carefully placing the I-beam between the "d" and "i" and double-clicking to select the space.

Change the second and final occurrence of *Alice in Wonderland* to italics in the third sentence of the paragraph. Drag the I-beam across the title, starting from the beginning and down to the next line, where the rest of the title rests. Again, select Plain Text from the Style menu and then select Italic. Click anywhere in the document window to remove the black selection area.

For the final change, scroll to the last paragraph and select the phrase "Cheshire Cat" by dragging the I-beam across it or by placing the insertion point at one end of the phrase and then clicking the mouse button. Because the Cheshire Cat is such a bizarre figure in *Alice in Wonderland*, it might be appropriate to select an equally bizarre font for the phrase: San Francisco. Select San Francisco from

the Font menu and look at the phrase in the window. Now, because San Francisco looks best in 18 point size, go to the Style menu and select the outlined 18 Point size. Watch the selected text grow and the line on which it's printed drop down about a quarter of an inch. Because the newer versions of the System Disk and Write/Paint don't come with San Francisco in their system files, you can choose another 18 point font like Athens in place of San Francisco in the Alice document.


Alice
conversations in it, and what is the use
of a book,' thought Alice, 'without
pictures or conversations?'
This fanciful opening almost belies the witty logic games that make up
the bulk of the book's conversations, such as when Alice watches the
Cheshire Cat disappear into a sly grin and says to herself,
'Well! I've often seen a cat without a grin,'
thought Alice; 'but a grin without a cat!
It's the most curious thing I ever saw in
my life!'

A portion of the Alice document using the New York, Venice, and San Francisco fonts and three different sizes.

Saving and Printing Alice

Once all the above editing changes have been made to the Alice document, go to the File menu and select Save to store your work on the disk. After saving, go back to the File menu and select Print. Because you haven't seen much in the way of various fonts, styles, and sizes on printouts, this is the perfect document for showing off some of

the Imagewriter's magic. When you are presented with the Print box, select Standard printing and the Continuous Paper Feed setting (unless you are using single cut sheets). Click the OK button to begin the printout. After seeing the familiar message informing you that a printed copy is being saved to the disk, the Imagewriter will go to work. When the printout is completed, choose Print again from the File menu, this time selecting Draft printing from the Print box. Once you click the OK button, the printout begins immediately in the usual 9 point, sans serif size and font. Notice that the italics, Venice font, and the San Francisco (Athens if you don't have San Francisco) Cheshire Cat are ignored in the Draft printout. Try printing again using High quality printing to compare the High quality fonts and styles to the Standard quality fonts and styles.

Saying Good-bye to Alice

After you have printed out several versions of the Alice document, click in the document window's close box. If you want, save any extra changes you have made to the Alice document, but you won't be needing the document again.

Formatting Documents—Top to Bottom

So far, you've used MacWrite's formatting tool—the ruler—to arrange text within the confines of a regular sheet of paper, setting the line spacing, justification, margins, tabs, etc. The ruler in combination with MacWrite's fonts, styles, and sizes produces very attractive documents and gives you enormous flexibility in the way you can make your printed document look. Another formatting feature, with which you create the top and bottom margins of each page, not only adds to the overall appearance of a document, but also performs the important function of displaying page numbers, any text that identifies chapters, sections, etc., and some true-to-form MacWrite exclusives, such as the date and time. Of course, creating top and bottom margins in MacWrite is a simple matter of selecting a command from one of the pull-down menus and working with a ruler and a small document window.

Before you can work effectively with top and bottom margins in MacWrite, you need a document in which to display them. Therefore, before you make a trip to the Format menu, you have to type in the passage reproduced below. If you have closed the Alice document,

you should be staring at the empty MacWrite desktop. Choose New from the File menu to open an untitled document. Move the arrow pointer to the first ruler and make two changes: drag the indentation marker from its current position at 1⅛" underneath the left margin marker to the 1¼" position along the inch scale. Then click on the double-spacing box to select it. Leave the other default ruler settings alone. The rest of this section assumes you have only changed the indentation and line spacing.

Adding to the Story

Once you've opened your new document and changed the ruler settings as prescribed above, type in the following passage. If you type everything *exactly* as written, including the keystrokes in hairpins, the resulting MacWrite document should be one page long. When you're finished typing, you can check this by hitting the Return key a few times to look for the dotted page break line. (Use <Backspace> to remove the extra lines.) If your document is longer than a single page, or seems much shorter (check the position of the scroll box on the scroll bar), look at your ruler settings and make sure that you haven't inadvertently selected single or one and a half line spacing or made the margins too narrow.

Here's the passage:

> Robert bristled at the suggestion that he should go back into the mines to earn his living. He had already spent most of his young life under the earth, ferreting out minerals, and had no interest in going back, especially since he had a new job "out in the light," as the other miners used to say. His job as a foreman for the new automobile plant in the valley, about twenty or so miles from where he lived, was certainly an improvement over the perpetual darkness of the mines and the people who worked in them. <Return>

But Robert had been temporarily laid off by the car factory, as had nearly three hundred of his co-workers, and was now trying to find interim work, anything that would tide him over until he was called back to the plant. His family and friends immediately suggested the mines, an idea Robert rejected outright and which caused him to blow up at both his parents and wife. Later, as he collected his thoughts while walking, his initial rage was tempered as he realized his parents, and even his wife, spent their entire lives with the mines, and knew little else. For nearly forty years his father had come home with the dirt of the mines spread across his clothes and being. Even Robert's wife, who had never set foot anywhere near a mine, watched as her parents both catered to the life of the mines. <Return>

Robert wanted something different for himself. He had always been fascinated by pictures he saw in magazines and newspapers. Pictures of places far removed from his isolated corner of the world. Perhaps, he thought, it was time to finally see these places.

To make sure you have typed in the above story correctly, move the insertion point to the very end of the document and hit <Return>. One press should move the insertion point past the dotted page break to the top of the next page. If it doesn't, check your ruler settings.

After you have typed the passage into the document window, select Save from the File menu. Name the document Mines and press <Enter> to begin the Save. Then go back to the File menu and select Print. Choose Standard printing and click the OK button to begin the printout. Make sure your Imagewriter is turned on and the paper is correctly placed. When the printout is complete, remove the page from the Imagewriter and spend a few moments examining it.

Because you typed the entire document in a format set by the first ruler, your printed story stretches from the top of the page to the bottom with a single blank line separating the text from each end of the paper. While this format is acceptable for rough drafts, in final versions of your work you'll want extra space at the top and bottom of each page where you can place page numbers and other information. These top and bottom margins are called headers and footers.

Meeting Headers and Footers

In your previous excursions to the Format menu, you came across the Open Header and Open Footer commands. Like rulers, headers and footers in MacWrite may be called up through the Format menu, set according to your needs, and then placed into the current document with a single click on the mouse button. Unlike rulers, however, headers and footers are windows that may be manipulated like any window on the Macintosh. Also unlike rulers, headers and footers cannot be hidden from view without removing them entirely from the document. This should make sense to you. After all, headers and footers are actually a part of the document, both on the screen and on a printout, whereas rulers are simply tools you use for formatting your document.

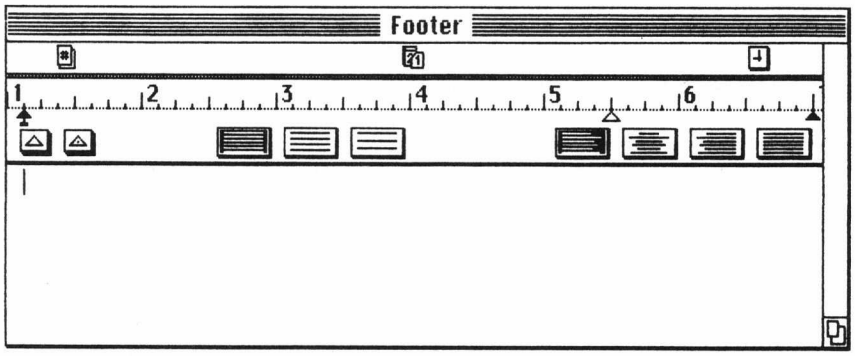
Headers and Footers in Version 1.0 and 2.20 of MacWrite

Version 1.0, the original release of MacWrite, features two commands in the Format menu which control the placement of headers and footers. These commands, Show Header and Show Footer, automatically changed to Hide Header and Hide Footer when a header and footer were placed into a MacWrite document. Version 2.20 changes the procedure for using headers and footers by renaming Show Header and Show Footer and adding two commands to the Format menu.

In version 2.20, Show Header and Show Footer have been replaced by Open Header and Open Footer. The two new commands, Display Headers and Display Footers display the footer or header in a document. These two commands automatically become Remove Headers and Remove Footers when the two items are present in a document. Open Header and Open Footer do not change, regardless of the status of headers and footers in a document.

Footers

Scroll to the top of the Mines document. Aside from the ruler, there is only text in the document window, beginning right under the ruler. As you saw in the printout, the first line of this document prints out in exactly the same position it occupies in the window. If you like, choose Hide Rulers from the Format menu to give a more accurate depiction of the printed page. Now scroll to the bottom of the document. Again, what appears in the window is the same as what prints out, namely a single blank line at the end of the page. Move the arrow pointer to the Format menu and select the Open Footer command (Show Footer in version 1.0) from the pull-down menu. As the disk drive spins, a new window jumps into place on the top half of the Macintosh screen, covering the document window. In its title bar is the name Footer. Because it has a title bar and size boxes (it does not have any scrolling features), you know that Footer is a window.



The Footer window is called with the Open Footer command from the Format menu.

Like all windows, the Footer window can be resized, closed, opened, and shoved off the edge of the screen. Try resizing the Footer window by placing the tip of the arrow pointer on the size box at the lower right of the window and dragging the outline of the window to the top left corner. You'll find that you can shrink the Footer window to about one inch by two inches. When you're finished experimenting, resize the window back to its original size.

Within the Footer window there are three parts, two of which are familiar to you. The ruler across the window is exactly the same ruler you've used countless times in MacWrite. Notice that its settings are the MacWrite default settings, *not* the settings of the first ruler in the Mines document. Both Footer and Header windows always open with the default ruler. The white area below the ruler, which has its own blinking insertion point, is the space in which you add text to the footer. The only new items in the Footer window are the three icons across the very top, just below the title bar. These icons are used to set the pagination, the date and the time. The icon with the pound sign (#) places pagination into the footer. The middle calendar icon, with the numbers 1 and 2, places the date, and the rightmost icon, with the face of a clock, places the time into the footer. Placing these into the footer is a simple matter of dragging the icon down to the text area of the Footer window.

Both text and the ruler within the Footer window may be edited and changed as if they appeared in the document window. The ruler may be copied to the Clipboard, another ruler may be pasted into the Footer window, and text in the footer may be selected, copied, moved, and deleted. Text may even be edited for font, size, and style attributes. Though you won't be working with MacPaint pictures in MacWrite for a while, you can even paste a picture into the footer and header.

When creating a footer, you will first want to figure out its height. In other words, how many lines tall will it be? You can make a footer any height from a single line to a third of a page. Adding blank lines is done by pressing the Return key and watching the insertion point in the Footer window drop toward the bottom. You may change the line spacing on the footer ruler to increase the margin height. For now, leave the ruler's line spacing at the default setting of single space and press the Return key once. You've just added a single blank line to the footer. Press Return a few more times. If you continue to press till the insertion point drops below the bottom of the Footer window, you will be warned with a box bearing the message:

The header or footer is too long.

Click on the OK button or press <Enter> or <Return> to get rid of the warning. Remove the blank lines by pressing <Backspace> until the insertion point is back at the beginning of the text area. No matter which line spacing you select on the footer ruler, you are limited to six

presses of the Return key within the footer's text area. Clear out any blank lines you have added to the Footer window and select double-spacing by clicking on its box in the middle of the ruler. Resize the Footer window by dragging the size boxes toward the bottom of the screen. You'll find you can't make the Footer window any bigger than the document window. Now press <Return> seven times. On the seventh press, you received the header and footer warning again. Click on the warning's OK button and remove the blank lines with the Backspace key. Shrink the Footer window back to its normal size. Finally, select single-spacing again on the footer ruler.

The ruler in the Footer window may be adjusted in any fashion you like. You've just seen how selecting different line spacings affects the height of the footer. Changing the margins lets you determine width and placement of the footer text. Making the margins narrower than those in your document restricts the footer text and makes it easily distinguishable from the document text. The center-justification box is especially useful when you want to center a simple line of footer text.

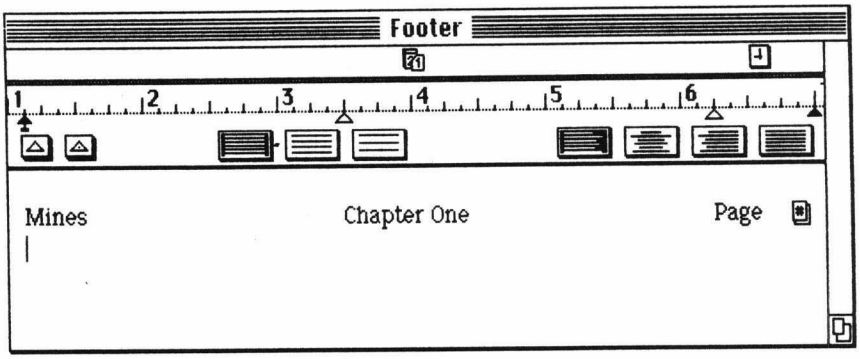
Tabs are helpful because they let you jump around the date, page number, and time icons when they're placed in the footer. Drag a tab from the regular tab well and place it at the 3½" mark along the inch scale by releasing the mouse button. Drag the tab that's at the 5½" mark over to the 6¼" mark. Making sure that you have single-spacing and the default margins, hit the Return key once to move the insertion point to the beginning of the second line below the ruler. Now type the name of the current document, Mines. Press the Tab key to move the insertion point to the 3½" mark and type:

Chapter One <Tab>

Then type:

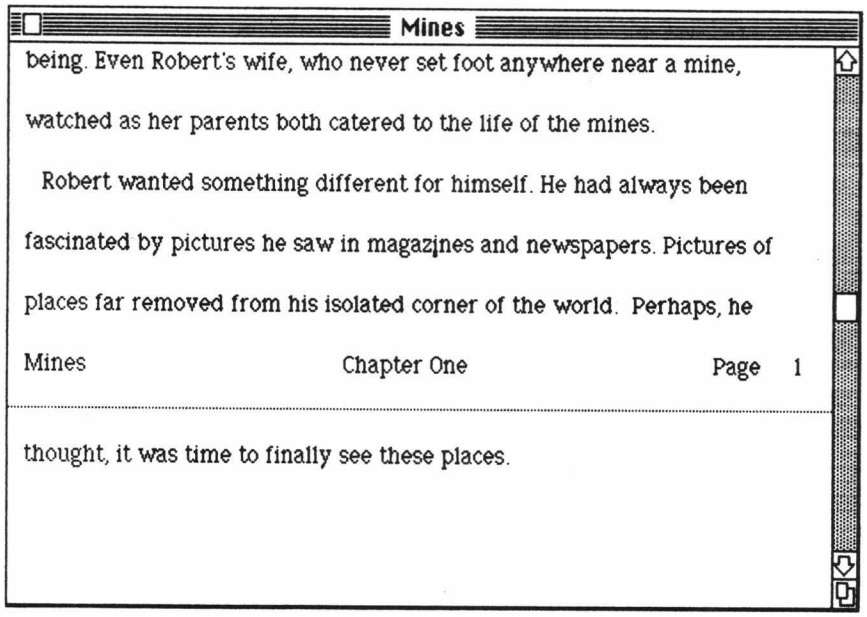
Page <Return>

That adds the text to the footer. Now you will add page numbering. Move the arrow pointer up to the top of the Footer window and place the tip of the arrow on the page number icon with the pound sign (#). Drag the icon down into the text area of the Footer window and place it two spaces after the word "Page," lining it up with the 7" right margin mark. Release the mouse button to leave it there. Notice that, as you drag the number icon around the footer, you can place it anywhere on a line, even on top of other text.



The arrangement of the Footer window for the document.

To display the footer in the Mines document, move the pointer outside of the Footer window and click anywhere in the document window. When you return to the document window, scroll down to the bottom of the first page to see what the footer looks like. Not surprisingly, there is a blank line both before and after the footer, and the text you just typed. Notice that the page number 1 is displayed at the far right of the footer where you placed the number icon. Each page in the document is numbered automatically when you place the number icon.


Mines
being. Even Robert's wife, who never set foot anywhere near a mine,
watched as her parents both catered to the life of the mines.
Robert wanted something different for himself. He had always been
fascinated by pictures he saw in magazines and newspapers. Pictures of
places far removed from his isolated corner of the world. Perhaps, he
Mines Chapter One Page 1
thought, it was time to finally see these places.

The footer displayed in the Mines document.

Because you have added the footer lines to the document page, the number of lines of text per page is decreased, so you should see a page break, with the last line of the Mines story spilling over to the top of the next page. Now drag the scroll box all the way to the bottom of the scroll bar to view the end of the document. As you probably expected, the footer is sitting alone at the bottom of page 2.

Headers

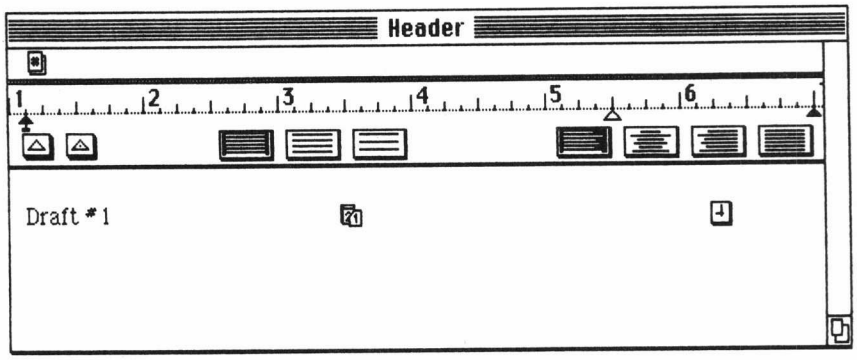
Headers are *exactly* the same as footers with the exception that they are displayed at the top of each page in a document, rather than at the bottom. Open the header by going to the Format menu and selecting Open Header (Show Header in version 1.0). The Header window will appear on the screen, displaying the same page number, calendar, and clock icons, ruler, and text area as the Footer window did.

Notice that the Header window's ruler sports the MacWrite default ruler settings, not those stored in the footer. It's very important to bear in mind that the header and footer are distinct and independent of each other: What you do in one has no effect on the other. Capitalizing on this feature, instead of reiterating the page number and title of the current document, which are already present in the footer, you'll arrange the header using the calendar and clock icons to help you keep track of the draft you are writing.

Leave the default ruler settings alone. They're fine for what you're about to do. Press <Return> once to move the insertion point one line below the header ruler. Now type:

Draft #1 <Return>

Go to the top of the Header window and drag the calendar icon down to the line with "Draft #1" on it and place the icon under the 3½" mark. Then drag the clock icon from the top of the Header window down to the same line and place this icon under the 6¼" mark. As you work with these icons, notice that you cannot place them anywhere on the ruler. If you try, they simply snap back into place on the top of the window.

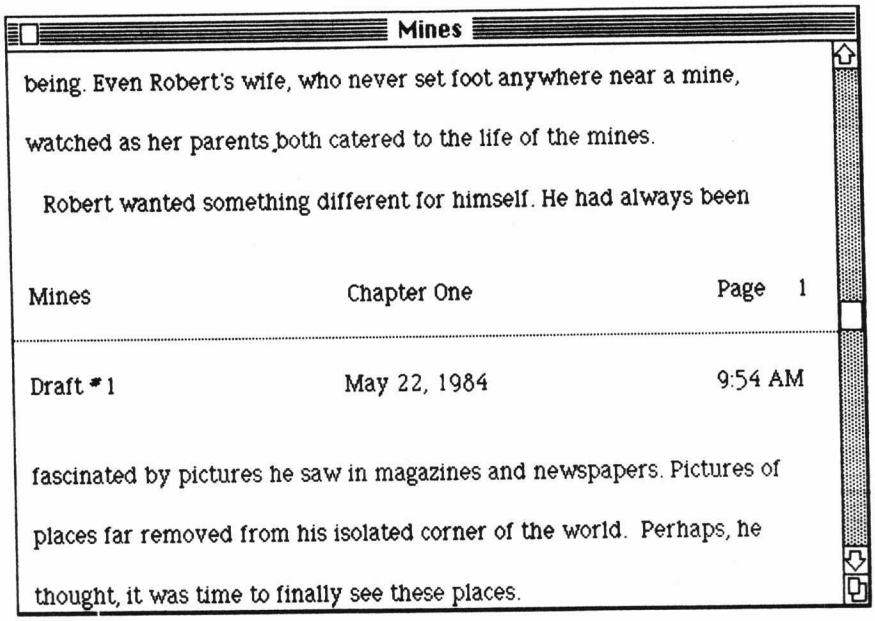


The Header window for the Mines document.

Using the calendar and clock icons in headers and footers is an excellent way to keep track of when you wrote something. When creating and editing different drafts of a document, noting the draft number somewhere in the header or footer helps you keep track of different versions of the same work. If you print out every version you edit, in lieu of printing each draft on different-colored paper, you can just add the draft version to the header or footer.

Before clicking in the document window, select the text area of the header by placing the insertion point at the end of the header and then moving the I-beam to the beginning. Then hold down the Shift key while you click once on the mouse button. Both lines of the header, including the calendar and clock icons, become selected. Now move the pointer to the Edit menu and select Copy. Click inside the Header window to remove the black selection area and then select the Show Clipboard command from the Edit menu. In the Clipboard window you will see the words "Draft #1" and no sign of either the calendar or clock icons, even though they were selected in the header window. None of the three icons can be cut or copied out of the header or footer. Close the Clipboard window by clicking in its close box. Display the header in the Mines document by clicking anywhere on the document window.

When you view the header in the Mines document, you see a blank line above and below the line of header text. The date is displayed in full, not abbreviated. The time on the right side of the header text line is fully displayed with AM or PM.


Mines
being. Even Robert's wife, who never set foot anywhere near a mine,
watched as her parents both catered to the life of the mines.
Robert wanted something different for himself. He had always been
Mines Chapter One Page 1
Draft #1 May 22, 1984 9:54 AM
fascinated by pictures he saw in magazines and newspapers. Pictures of
places far removed from his isolated corner of the world. Perhaps, he
thought, it was time to finally see these places.

The displayed header and footer. Notice the date and time are spelled out completely.

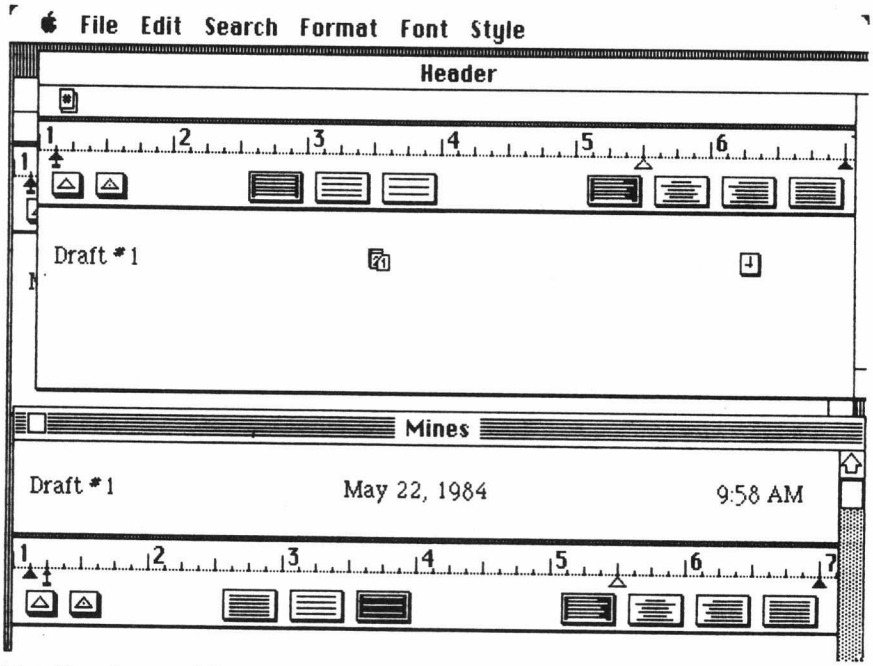
If you sit a minute you'll see the header text blink and the time will change one minute. Icons display the current date and time when a document is opened. Original dates and times are not preserved with documents. If you want a permanent date or time in your document, you must type it into the header or footer text.

Scroll through the Mines document, stopping at the page break between the first and second pages. If the rulers in the document are obstructing your view, choose Hide Rulers from the Format menu. (Hide Rulers also hides the rulers from the Header and Footer windows.) Notice how nicely the header and footers line up. Also notice that more text has spilled from the first page to the second because the header occupies two lines of space (one blank line and the text line; the third blank line you see is the default of the header/footer) in the document. When you're finished browsing, choose Save from the File menu to preserve your handiwork. Headers and footers are saved with the document and appear every time it is opened.

Where Did All the Windows Go?

When you display the header and footer by clicking on the document window, you might well be wondering where the Header and Footer windows go. Do they disappear like rulers, or do they merely hide? Your familiarity with the Macintosh should help you solve this mystery. Whenever you click in a window to make it active, all other windows drop underneath the active window. Because the Header and Footer are windows, they disappear underneath the document window when you display it. Rulers, on the other hand, are not windows and actually disappear from the screen when you hide them.

To peek at the Header and Footer windows, move the document window by dragging its title bar toward the bottom of the screen. Leave about a third of the document window showing and release the mouse button. As you move the document window, the Header and Footer windows come out of hiding.



The Header and Footer windows behind the MacWrite document window.

You might have to reposition them to get a better view. Move the windows around and activate each one to examine its contents. When you're finished, activate the document window by clicking in it and dragging it back to its original position on the screen.

Editing Headers and Footers

In the course of creating a document and garnishing it with headers and footers, there will be times when you want to change some of the information in the header or footer. In some cases you might simply want to remove the headers and footers from the document altogether. All editing of headers and footers must take place in their respective windows. Attempts to edit headers or footers in the document window result in an information box telling you that you must edit in the Header and Footer windows.

Editing within the Footer or Header window is exactly like editing in the document window. There are, however, a few editing points unique to headers and footers. First, the font, size, and style of the time, page number, and date are determined by the first character in the header or footer and cannot be selected and changed to something different. Text in the Header or Footer window can be selected and changed to different styles, fonts, etc. Secondly, the initial character of the date, time, and page number appears at the icon position. If you slide an icon too close to the right margin, you can lose text off the page. Keep a similar thought in mind when placing the page number icon. Allow for double digits when your document grows past nine pages by placing the page icon at least two spaces away from any margin or text.

When you want to remove the header or footer from a document completely, select Remove Headers or Remove Footers (Hide Header or Hide Footer in version 1.0) from the Format menu. Executing these commands removes the header or footer from the document. Headers and footers removed in this manner may be returned to the document by selecting Display Headers or Display Footers. (Show Header or Show Footer will work in version 1.0 but you must click in the document window.) Header and footer formats and text are preserved even if you remove them from the document.

The last editing point to keep in mind when using headers and footers concerns the way you manipulate different windows. Displaying both a header and footer places three windows on the screen.

When the Header and Footer windows are covered by the document window, you don't even know they're there, but when you need to edit them, the small nine-inch Macintosh screen can seem even smaller. The easiest way to edit headers and footers is to drag the document window sufficiently out of the way to expose the other windows. Don't even resize the document window—that's too much work. Just drag it by the title bar, then click in the appropriate window, edit, and drag the document window back into place. The whole process takes a few seconds and speeds editing immeasurably.

Printing with Headers and Footers

Because headers and footers become part of the document page when they are displayed, printing them as part of a document requires no special instructions. Headers and footers cannot be hidden from view in the document window and still be printed; they must be displayed. To get an idea of what headers and footers add to the printed page, make sure a version of the Mines document is on your screen with both the header and footer displayed. If they're not, open them from the Format menu and display them in the document by clicking anywhere within it. Select Print from the File menu and click on Standard quality for the printout. Also check to see that the appropriate Paper Feed setting is selected. Make sure that your Imagewriter's power is turned on and that the paper is aligned correctly. Click the OK button in the Print box to initiate the printout.

When the printout is completed, remove it from the Imagewriter and compare it to the original version of the Mines document you printed at the beginning of this section. Aside from the helpful information you've placed at the top and bottom of the most recent printout, the first difference you'll notice will be that the appearance of the page is more appealing than the original, which looks too dense. Make it a point to place headers and footers into every paper, report, article, or story you write. About the only place you probably won't want to use headers and footers is in the beginning of formal letters.

Title Page

There might be times when you want to print out a document with headers and footers but not have them appear on the first page of the printout. It's customary to present reports and papers in this fashion and you'll definitely want to eliminate the header and footer from the first page of a multipage letter. You might think that you have to execute some MacWrite wizardry to this end, perhaps hiding the header and footer, printing the first page of the document with the Page Range option of the Print command, replacing the header and footer, printing the document from page two through the end using the Page Range option again, and then spending the rest of the day cursing at the Macintosh. While these steps do produce a header and footer-free first page in the printed document, you need only go into the Format menu and select Title Page to the same end. MacWrite's authors have anticipated you again.

Title Page causes the header and footer of a document to not appear on the first printed page of the document. Subsequent pages are not affected by the Title Page function. Printouts made with Title Page do *not* reformat the document to account for the missing header and footer. Instead, the first page of the printout simply eliminates any text, pictures, page number, time, or date from the header or footer.

To get a firsthand look, move the pointer to the Format menu and select Title Page. When it's active, there is a check next to it. Turn Title Page off by selecting once more. When checked, Title Page removes the header and footer from the first page of your document. Scroll to the middle of the Mines document, stopping at the dotted page break. Notice that the footer of the first page is absent, but the header of the second page is displayed. Scroll to the end of Mines to assure yourself the footer is displayed at the end of page two. Now select Print from the File menu, then select Standard printing and click the OK button to begin the printout.

When the printout is finished, remove the pages from the Imagewriter and compare them to the printout with the header and footer. As you can see, only the text of the header and footer is removed from the first page, not the header or footer itself. Title Page removes the text only and preserves the height of the header and footer on the first page of

the document. Flipping to the second page of the printout, you see that both the header and footer are displayed in their regular fashion. Select Title Page or Undo Title Page from the Edit menu to remove its effect.

Note that Title Page is saved with a document and remains until you select it again, even after closing and opening the document from the File menu or desktop.

A Final Word About Printing

The only peculiarity you will run into when printing documents with headers and footers is with Draft quality printing. For some unexplained reason, Draft quality ignores the header on a page and jumps right into printing the body of the document. It then finishes the page by printing the footer. Now comes the silly part: When the printer reaches the end of the page, it doesn't begin the next one; it scrolls all the way back to the top of the first page, prints the header, and then advances all the way to the following page, where it repeats the same process by skipping the header, printing the rest of the page (including the footer) and then returning to the top to print the header. It will do this for every single page in a document. While it doesn't cause any problems, it is disconcerting to watch. Future releases of MacWrite will undoubtedly correct this odd behavior (as of this writing, the problem has not been corrected with version 2.20 of MacWrite). Until then, you'll have to bear with it.

Searching MacWrite

In general, computers are dull creatures capable of doing only what they're told by a program or application and a user. The only reason computers are helpful to both you and me in our day-to-day chores is that they execute our every instruction rapidly, be it scrolling through a document or changing the fonts of an entire paragraph. One of the most useful ways word processors like MacWrite exploit this feature is in the area of searching documents for words, pieces of words, even blank spaces. Once found, every repetition of a particular word or fragment can be edited or corrected or deleted. Of course, MacWrite differs from most word processors in nearly every feature, and its searching function is no exception. With MacWrite you can scan a document for any word or fragment, find it, and edit it not only for accuracy in spelling, but also for font, style, and size. As you create longer documents with MacWrite and become more and more accustomed to "electronic writing," exploiting features like this makes writing and editing a very efficient process.

Using the Search Menu

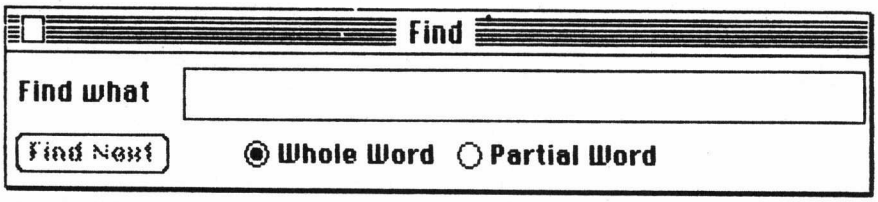
You should still have the Mines document open in the MacWrite document window. When you have it on the screen, make sure both the header and footer you made in the last section are displayed in the document. Display them with Display Headers and Display Footers (or Show Header and Show Footer followed by a click in the document window in version 1.0) from the Format menu. Finally, move the blinking insertion point to the beginning of the document by moving the I-beam to the first line and clicking once on the mouse button.

Finding Text

After you've prepared your document according to the instructions in the previous paragraph, move the pointer to the menu bar and open the Search menu. This is the only pull-down menu you haven't used in MacWrite. Its sole purpose is for finding and changing text within

documents, and has no effect on formatting, printing, headers, footers, etc. Within the menu are two commands: Find and Change. Find does just that; it finds the text you specify. Change, on the other hand, both finds *and* changes text.

Select Find from the Search menu to open its window. Like headers and footers, both the Search menu commands reside in windows. If you've been keeping track of MacWrite windows, the addition of these two brings the total number of windows you'll have used so far to six (document, Clipboard, Header, Footer, Find, and Change). Find and Change are the last two windows in MacWrite.



The Find window selected with the Find command from the Search menu.

As you look at the Find window on the top of the Macintosh screen, notice it does not have scroll bars or a size box. In fact, you only know it's a window by the close box in the upper left corner. The Find window works in a manner similar to the Save and Save As boxes you've used throughout MacWrite and MacPaint to save your work to the disk. You type the text you want to find into the Find what box and click the Find Next button or press <Return> or <Enter> to begin your search. The bottom part of the Find window contains two options you can use: one to search for an entire word (Whole Word), and the other a fragment (Partial Word). Whole words are those that are flanked on both ends by blank spaces. Partial Word, on the other hand, tells the Find command

to look for all occurrences of the word or phrase without regard to its position in the document. (There are no references to the Whole Word and Partial Word options in the original edition of the *MacWrite* reference manual, which was prepared using a preliminary version of MacWrite that did not offer these two options. Nevertheless, that reference manual's section on Finding Text and Finding and Replacing Text is still accurate.)

Using Find, you can locate any series of characters. You are limited to forty-five characters in the Find what box, the last four of which are not displayed. To illustrate, make sure the Find what text box is empty. Clear out any stray characters that might be there with the Backspace key and make sure the circle next to Whole Word is selected. Also check that the insertion point is at the very beginning of the document. Now type:

Robert

As soon as you enter the first letter of the name, the Find Next button becomes available. Move the pointer to the button and click in it. Almost instantly, the very first word of the Mines document, Robert, becomes selected, but only the word itself, and not the blank spaces surrounding it. Click the Find Next button once again and watch as the document automatically scrolls down a few lines and the second occurrence of the word Robert is selected. This is the entire procedure for using Find. You click the button to proceed to each occurrence of the word, at which point you can edit it like any other selected word, and then move on to the next occurrence. When Find locates all occurrences of the word, it lets you know with an information box.

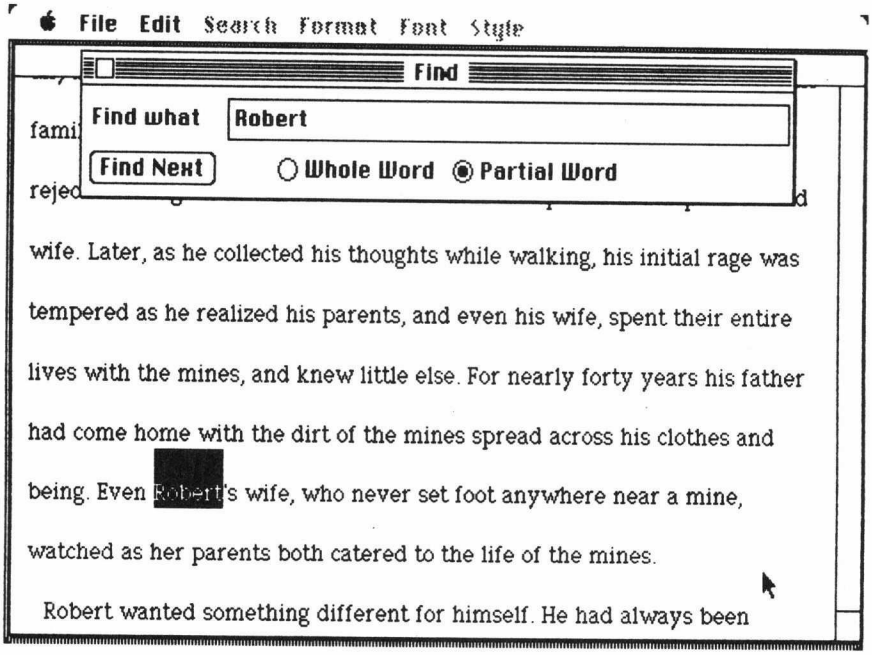
Press <Enter> to locate the next occurrence of Robert. Press <Enter> once more to select the occurrence of Robert at the beginning of the last paragraph. Notice that Find passed over the word "Robert's" in the last sentence of the preceding paragraph. Because you have selected the Whole Word option, Find is only looking for the word Robert flanked by spaces. Press <Enter> once more to be greeted with the message:

"Robert" not found

in an information box. Press <Enter> to remove the box.

Go back to the Find window, which should still be at the top of your screen, and click in the circle next to the Partial Word option. Leave the word Robert in the Find what text box. Press <Enter> to look for the

word. Don't worry about the fact that the last selection of Robert at the end of the document is still there. With the first press of <Enter>, Find should locate Robert at the beginning of the document. Press <Enter> three more times until "Robert's" is located.


File Edit Search Format Font Style
Find
Find what
Robert
Find Next
Whole Word
Partial Word
wife. Later, as he collected his thoughts while walking, his initial rage was tempered as he realized his parents, and even his wife, spent their entire lives with the mines, and knew little else. For nearly forty years his father had come home with the dirt of the mines spread across his clothes and being. Even Robert's wife, who never set foot anywhere near a mine, watched as her parents both catered to the life of the mines.
Robert wanted something different for himself. He had always been

Chosen text found and selected using the Partial Word option.

Because you have changed the search specification from Whole Word to Partial Word, Find locates "Robert's." Notice that it does not select the entire word, however, but only the Robert part.

What to Look For

When searching for a word or phrase in a MacWrite document, Find always begins the search at the insertion point or the current selection. The search continues to the end of the document and then circles back to the beginning, if necessary, to continue. The search stops at the insertion point or selection where it began. During the course of any search, all capitalization, accents on characters (produced with the Option key character set), fonts, sizes, and styles are ignored. This focuses the search on the letters of a word or phrase and not cosmetic attributes.

Go back to the Find window and clear out the text in the Find What box with the Backspace key. If you want, you can select the text in this box and cut or copy it to the Clipboard. Like the text in Get Info windows on the desktop or Save and Save As boxes, text in the Find (and Change) windows may be selected and placed on the Clipboard, or the current contents of the Clipboard may be pasted to the Find what box. You cannot, however, edit text in Find and Change for font, style, or size.

Let's assume that you want to look at all the words in your document containing the characters "t," "h," and "e," and you don't care whether they form a single word or are part of another word. Type "the" into the Find what box, make sure the Partial Word option is selected, and press <Enter> to locate the first occurrence of "the." Keep pressing <Enter> to locate all twenty-five occurrences of the word "the." The bulk of occurrences consist of the word "the." However, there are some exceptions, such as "these," "their," "them," "father," and "clothes." In each case, MacWrite selects the specific word or letters you requested, even if they appear as part of a larger word.

Now go back to the Find window and clear out the text in the Find what box and enter a single blank space there with the spacebar. Press <Return> or <Enter> to locate a space. As you see in the document window, MacWrite even finds blank spaces for you. Blanks are always counted as part of the word or phrase you want to find. A common but nonetheless aggravating mistake is to type in a phrase to be located and accidentally add a blank space at the beginning or end. When you then tell MacWrite to search, it searches for the phrase with the stray blanks and often it rudely informs you that the phrase you're looking for is not in the document. Of course, you know better because you've just typed it into the document fifty times. When this happens, check your typing in the Find what box before you throw your hands up in the air in disbelief.

After locating a few blank spaces, go back to the Find window and press <Backspace> to remove the blank character. Now type:

Supercilious

and press <Enter> to search for it in the Mines document. The Macintosh immediately says "Beep, Beep" and tells you the word was not found. Using Find like this gives you a quick way to check if a particular word has been used in a document. Clear out the Find what box again and type:

Draft #1

This is part of your header. Press <Return> to locate it. Immediately the Macintosh tells you the phrase was not found. As you learned in the last section, text in headers and footers may only be edited within those windows. If you want, you can use the Search menu to locate and edit text within the Header and Footer window, though it's doubtful you will ever fill those windows with enough text to warrant calling in the Search menu.

Undoing Find

Every time you click on the Find Next button or press <Enter> or <Return> you have the option of undoing the find by selecting Undo Find Next from the Edit menu (or use the <Command-Z> keystroke). This causes the located selection to jump back to the previous occurrence of the word or phrase. Redo Find Next, the inverse of Undo, pushes the selection forward again one occurrence.

Working with the Find and Document Windows

Because Find is a window, you must activate it for use, and then hide or close it to return to work in the document (or any other) window. Clicking in its close box shuts the window and removes it from the screen. Clicking in the document window activates it and hides the Find window underneath. Like the Header and Footer windows under the document window, the Find window may be activated by clicking inside it after moving the document window. You can also select Find again from the Search menu to activate the same Find window that's hidden from view. This is usually the easiest way to work with the Find window because it eliminates having to move the document window around the screen to get at the Find window, which can be nestled between five other windows if you happen to have headers and footers, the Change window, and the Clipboard all tucked away behind the document window.

Using Find

Because Find selects whatever word or phrase you request, you can activate the document window and change the selection on the spot. The simplest way to change a located selection is to type in the new word or phrase, which replaces the selection. You should remember from the beginning of this chapter that MacWrite lets you select and replace without first removing your selection.

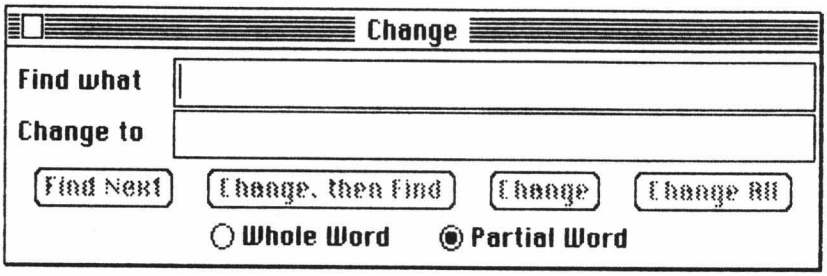
Another use of Find is as a specialized scrolling tool. If you want to find a reference or phrase in a long document, you can forgo reading the entire piece and use the Find window to lead you to the first occurrence in the text.

Changing Text

Find is a perfectly usable MacWrite command for locating a series of characters—often called "strings" by the computer community—and editing each selection on an individual basis. There will be times, however, when you want to make more sweeping editorial changes to a document. Suppose you decide to use the more common spelling of "Tchaikovsky" instead of the less common "Tschaikovsky" in your monograph on nineteenth-century Russian composers. Using the Find window to search for Tschaikovsky and then having to activate the document window, type in the correction, and re-activate the Find

window to proceed can become tedious rather quickly. Even if you use the Clipboard to paste in the alternative spelling, you still have to execute five steps every time you want to change one word. In a document with fifty or a hundred occurrences of Tschaikovsky, you might be tempted to forget the Russians and take up writing about jazz. After all, there's only one way to spell Ellington correctly.

Of course, a word processor as simple and easy to use as MacWrite would never make you go through so many steps for such a simple procedure. MacWrite's function for changing text is the second command in the pull-down Search menu: Change. Change is a window similar to Find, with several added features that let you find a word or phrase and change it on the spot, either automatically or by clicking the appropriate option button. Go to the Search menu and select Change. The Change window appears at the same place on the screen that the Find window does.



The Change window selected with the Change command from the Search menu.

Take a moment to look at the Change window. Like the Find window, there is a Find what box, a Find Next button, and the two search options, Whole Word and Partial Word. In addition to these familiar features, there is a Change to text box and three new buttons: Change, then Find, Change, and Change All. These new features perform MacWrite's find-and-replace magic.

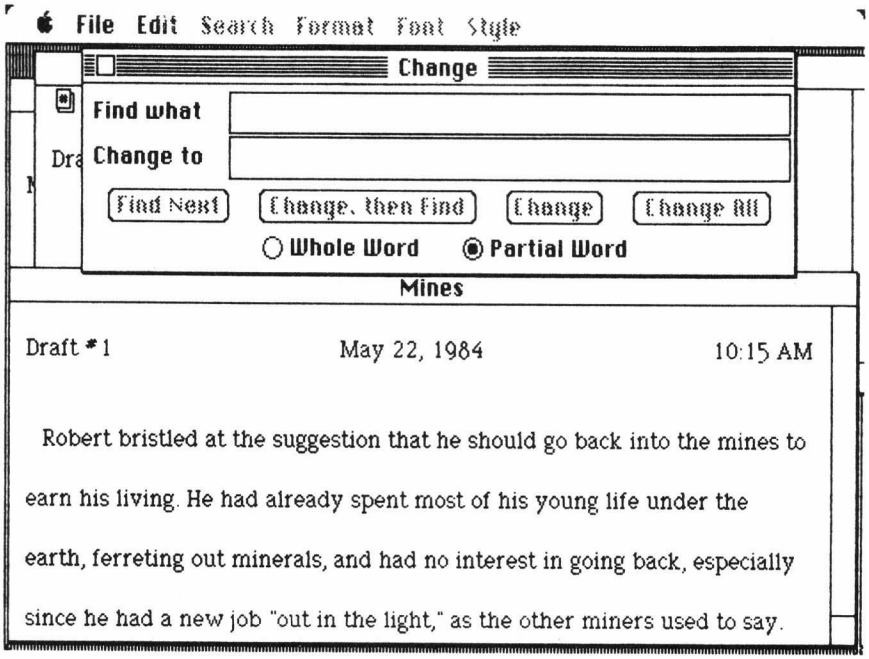
The Basics

The rules for the text you may type into the Find what and Change to text boxes are the same that apply to the Find window. You are limited to forty-five characters typed in through the keyboard or pasted into the text box from any number of locations, via the Clipboard. Blank spaces count as characters in the Find and Change text boxes. All capitalization, accents, fonts, sizes, and styles are ignored by the Change window. Searches begin at the insertion point or current selection and loop back to where they began. You cannot edit text for font, style, or size through the Change window.

Working with the Change Window

Because the Change window is larger than the Find window, it covers more of the document window and cuts down your ability to see all the text within the document. A simple solution that makes working with the Change window easier is to shrink the document window to about half its normal size and then to place it across the bottom of the

screen. This lets the Change window occupy the top half of the screen, out of the way of the text in the document window. See the accompanying illustration, which pictures this arrangement.


File Edit Search Format Font Style
Change
Find what
Change to
Find Next
Change, then Find
Change
Change All
Whole Word
Partial Word
Mines
Draft #1
May 22, 1984
10:15 AM
Robert bristled at the suggestion that he should go back into the mines to earn his living. He had already spent most of his young life under the earth, ferreting out minerals, and had no interest in going back, especially since he had a new job "out in the light," as the other miners used to say.

Resize the MacWrite document window and place it on the bottom of the screen to use the large Change window effectively and easily.

If you try to slide the full-sized document window off the bottom of the screen to make room for the Change window, you lose the ability to see the text at the bottom of the document window (which is open, just hidden from view). You have to shrink the document window in order to see all the text by making MacWrite scroll the text into view automatically.

Using Change

If necessary, scroll to the top of the Mines document and place the insertion point at the beginning. Display the Change window on the screen by selecting Change from the Search menu or by moving the document window to activate the Change window from underneath. Clear out any stray characters from the Find what and Change to text boxes by pressing the Backspace key. Move the insertion point from box to box by pressing the Tab key or clicking inside each box. Make sure the Partial Word option is selected at the bottom of the Change window.

Though the Change window is for both finding and replacing text, you can use it like the Find window. Make sure the insertion point is in the Find what box. Type:

Robert

Once you enter the first letter of the name, the Find Next button becomes available, as does the Change All button. Press <Enter> to locate the first occurrence of Robert. Though you haven't typed anything in the Change to box for replacing the located text, the Change, then Find and Change buttons become available when you press <Enter>. Ignore them for now. Press <Enter> five more times to locate all occurrences of Robert in the Mines document. Each time you locate Robert, you can edit it as if you were using the Find window. Cancel the "Robert" not found box by pressing <Enter>.

Suppose you want to change the name of the central character in the Mines document from Robert to Paul. This is called a "global" change, because you want to change every occurrence of one word or phrase to another, throughout the entire document. Global changes such as this really exploit the power of a word processor. Changing the five occurrences of Robert in the one-and-a-half-page Mines document may not seem like pushing MacWrite to great lengths, but changing Robert to Paul in a ten or twenty-page document is a different story.

Direct your attention back to the Change window. Move the insertion point from the Find what text box in the Change window to the Change to text box by pressing <Tab>. Now type:

Paul

You still have only the Find Next and Change All buttons available in the Change window. Press <Enter> or <Return> to locate the first occurrence of Robert once again. Once Robert becomes selected, all four buttons in the Change window become available. Before initiating any action from the Change window, you should be aware of what function each of these buttons performs.

Find Next: Locates the next occurrence of the specified word or phrase. Either edit the located text or click the Change button to replace the selection with the new text. This is the same Find Next you used in the Find window.

Change, then Find: Changes the located text and then moves to the next occurrence of the Find what text.

Change: Changes the currently selected text only. Change does not search for another occurrence unless you click Find Next (or press <Return> or <Enter>).

Change All: Changes *all* occurrences of the Find what text to the Change to text throughout the entire document. Change All cannot be undone with the Undo command. A warning box informs you of this and asks you to confirm or cancel your decision to Change All.

Pressing <Enter> or <Return> at this point simply locates the next occurrence of Robert. Move the arrow pointer to the Change button, then to the Find button and click once. Robert is immediately changed to Paul and the next occurrence of Robert is found. Click Change, then Find once again. Now click Change. Robert is changed to Paul but the selection does not move ahead to the next occurrence of Robert. Use Change if you want to replace the located text and then go into the document window to further edit the change.

Click Find Next once again to locate the next occurrence of Robert. If you've been following the previous instructions to the letter, MacWrite should have located Robert within the word "Robert's." If it hasn't, then you are either at another place in the document or you have not selected the Partial Word search option in the Change window. Click Change, then Find to turn Robert's into Paul's without any special effort

or trick. Thank the Partial Word search option for this feature. Click Change, then Find to replace the last occurrence of Robert with Paul. Because there are no other occurrences of Robert in the Mines document, a box with the message "Robert" not found appears on the screen to let you know you've run out of Roberts. Click the box's OK button to return to the active Change window.

Move the pointer to the Find what window and double-click anywhere within it to select Robert. Press <Backspace> to remove it. Hit the Tab key to drop the insertion point to the Change to text box and press <Backspace> once again to clear out the text. Move the insertion point back to the Find what text box and type:

Paul <Tab> Robert

You can guess what's about to happen: All occurrences of Paul in the document are going to be changed back to Robert in one fell swoop with Change All. Move the pointer to the Change All button and click on it. A box with the message:

WARNING! *Change All* is NOT Undoable!

appears. Press <Enter> or <Return> to go ahead with Change All. Almost instantly, all occurrences of Paul have been changed back to Robert. Longer documents might take MacWrite a few more seconds to replace all occurrences of a word or phrase.

Unlike Change All, which cannot be undone from the Edit menu, Find Next, Change, then Find, and Change may all be undone with the Undo command. Whenever you select any of these Change options, your last action can be revoked using Undo. Clicking anywhere within the document window after a change eliminates the ability to Undo the Change.

Odds and Ends with Loose Change

Not only does Change let you change text in your documents, it lets you change your mind, without paying penalties such as having to retype or renumber the pages of your work. You can use Change to find and edit text (remember that you can search for a phrase with up to forty-five characters) just as you would use Find. In fact, you can ignore Find altogether and use the Find what text box and Find Next button in the Change window to turn Change into Find. This puts the replace-

ment options of Change at your fingertips without making you close the Find window and open the Change window. Using Change in this manner also cuts down on the number of open windows that clutter your MacWrite desktop.

When using Change's find and replace options, make your change by clicking the appropriate search and replace button. If you then want to do further editing, you can always activate the document window and edit the changed selection for font, style, and size.

The Change window is also a useful tool for shortcuts in your writing. If you're preparing an extensive technical report on the early-blooming plants in your geographical region, complete with complicated Latin names, you might want to forgo typing "berberidaceous" throughout your section on May apples and simply use the upper-case Greek letter Beta, made by pressing <Option-S>, in its place. Later, when you prepare your report for final editing and printing, use the Change window to find all occurrences of "Beta" and replace them with "berberidaceous" using the Change All search option.

Closing Change

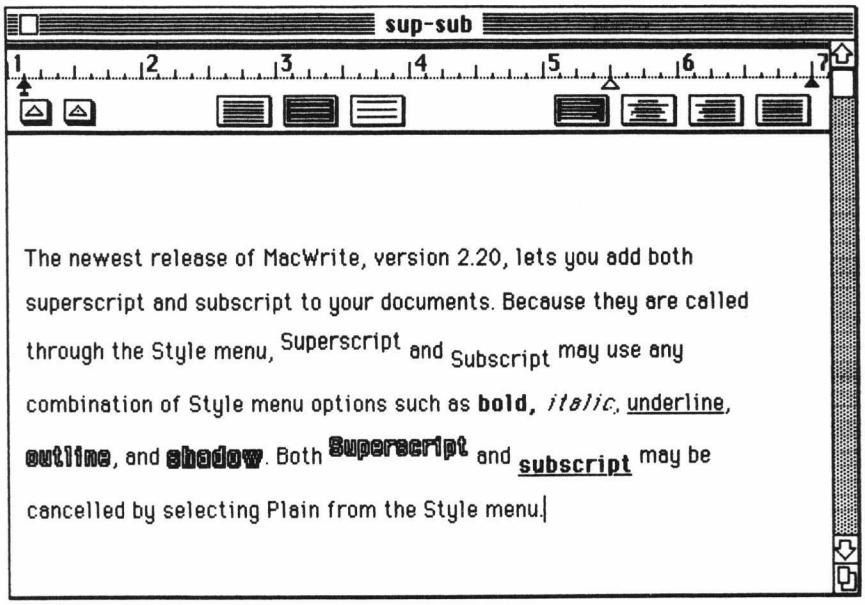
As you use MacWrite more and more, you will find new uses for the Find and Change commands. For now, though, the time has come to move on to yet another exciting feature of MacWrite: placing MacPaint pictures into your MacWrite documents. Close the Change window if it is still open on your screen, then close the document window. Click the No button when asked by MacWrite if you want to save any changes before closing. There's no need to alter the Mines document unless you have made changes you want to save. In any case, you will not need Mines anymore.

Superscript and Subscript in Version 2.20 of MacWrite

One of the major enhancements to version 2.20 of MacWrite is the addition of superscripts and subscripts. These are important features for a writer, especially someone in school. Superscripts and subscripts let you make footnote references as well as type in scientific terms and notation.

Both superscripts and subscripts in MacWrite are made using the Superscript and Subscript commands in the Style menu. Like the other Style menu options, Superscript and Subscript have keystroke shortcuts you can use. Superscript is called from the keyboard with <Command-H> while Subscript is called with <Command-L>. Presumably, the H and L stand for high and low.

As with the other style menu options, any selected text may be superscripted or subscripted. Also note that you may use the Style options in conjunction with Superscript and Subscript to make for some eye-catching text styles. As usual, selecting Plain from the Style menu cancels Superscript and Subscript (and any other style options in effect).


sup-sub
The newest release of MacWrite, version 2.20, lets you add both superscript and subscript to your documents. Because they are called through the Style menu, Superscript and Subscript may use any combination of Style menu options such as bold, italic, underline, outline, and shadow. Both Superscript and subscript may be cancelled by selecting Plain from the Style menu.

Superscript and Subscript are two of the most important enhancements to version 2.20 of MacWrite.

More Macintosh Magic—Mixing MacPaint with MacWrite

Because of the special digital graphics capability of the Macintosh, applications like MacPaint and MacWrite are possible with all their varied fonts, styles, sizes, and picture-making capabilities. And because the two applications share the Macintosh environment, each can communicate with the other through the two primary editing vehicles on the Macintosh: the Clipboard and the Scrapbook. MacWrite and MacPaint, in conjunction with the Clipboard and Scrapbook, not only let you edit and store your work, they let you become your own author, designer, editor, typesetter, and production manager. In short, they put you in complete control of your printing, letting you mix any combination of words and pictures to suit your every need.

You've already used the Clipboard for cutting or copying a selection and then moving it to another place in the same document or another document. You've also seen how to use the Scrapbook for similar purposes while utilizing its long-term storage feature. Moving between applications on the Macintosh is as simple as placing your selection on the Clipboard (and in the Scrapbook, if you like, though it's not necessary), quitting the current application, opening another, and pasting the Clipboard contents into the new document. These four simple steps let you perform personal computer magic that was unthinkable before the Macintosh.

Illustrating Your Thoughts

Open a new MacWrite document by selecting New from the File menu. Once open, select center-justification by clicking in the second justification box at the bottom of the ruler. This moves the blinking insertion point to the middle of the document window. Leave the other ruler settings unchanged. Move the pointer to the Font menu and

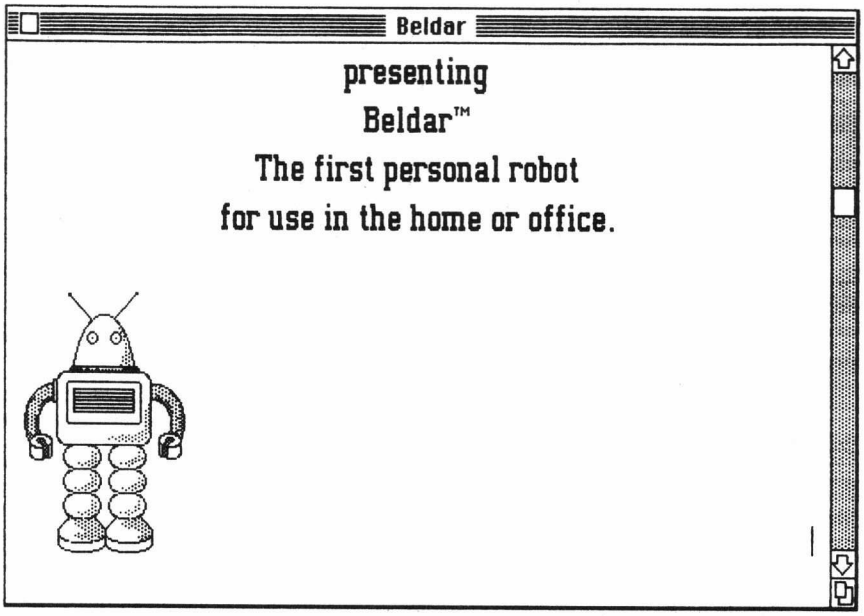
select Athens. Then go into the Style menu and select 18 Point, the recommended size for the Athens font. Now type the following text, remembering the keystroke conventions used throughout this book.

```
Special Announcement <Return>
from ACME Distribution, Inc. <Option-2> <Return>
<Return>
presenting <Return>
Beldar <Option-2> <Return>
The first personal robot <Return>
for use in the home or office. <Return> <Return>
```

Leave the blinking insertion point in the middle of the document for a moment and open the Scrapbook from the Apple menu. Scroll through its contents until you reach the robot and leave it open to this "page." Select Copy from the Edit menu to place a duplicate of the robot picture on the Clipboard. Close the Scrapbook by clicking in its close box. Select Show Clipboard from the Edit menu to look at the robot. Don't worry if some of the robot is cut off from view by the edges of the window; the entire picture is intact. Close the Clipboard when you're through looking at it.

Now make sure your insertion point is still in the middle of the document, two lines below the text. Here's the big moment: Select Paste from the Edit menu to place the robot picture within the MacWrite document. Use the arrow at the top of the scroll bar to move the entire document a few lines toward the top, bringing both text and robot into view. Though the robot looks like it made the journey from Scrapbook to Clipboard to MacWrite unscathed, it seems to have defied your best intentions and the centered insertion point by winding up along the left edge of the document window. MacWrite lets you select the picture and move it anywhere along an invisible horizontal line. Notice that the placement of the insertion point before pasting the robot had no effect on the robot's position on the line, and the text formatting set with the

ruler, chiefly the center-justification, has no effect on the picture. Whenever you paste a MacPaint picture into a MacWrite document, you must shift it using the following selection techniques.

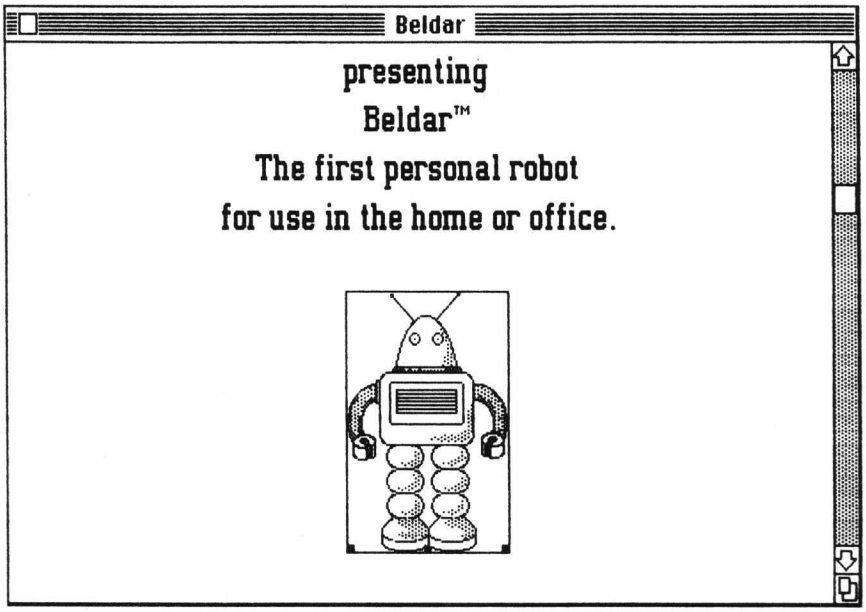


Robot pasted into the Beldar announcement.

Click the arrow pointer anywhere on the picture. As you move the pointer around the screen, note that it assumes the arrow shape, and not the usual MacWrite I-beam, when it is within the section of the document containing the picture. This indicates that you cannot add text to this block and must add text at the insertion point, which has moved to the end of the picture. Move the pointer to the robot and click once on the mouse button. The selection border that appears around the picture is similar to the selection rectangle or marquee used by MacPaint. Unlike the MacPaint selection rectangle, you cannot shift a picture in MacWrite vertically. You must slide the picture horizontally.

Moving Pictures

Move the tip of the pointer to either vertical edge of the selection border, press and hold the mouse button and drag the selection border to the right. This moves the picture toward the right edge of the document window. Release the mouse button and watch the picture snap into its new position.



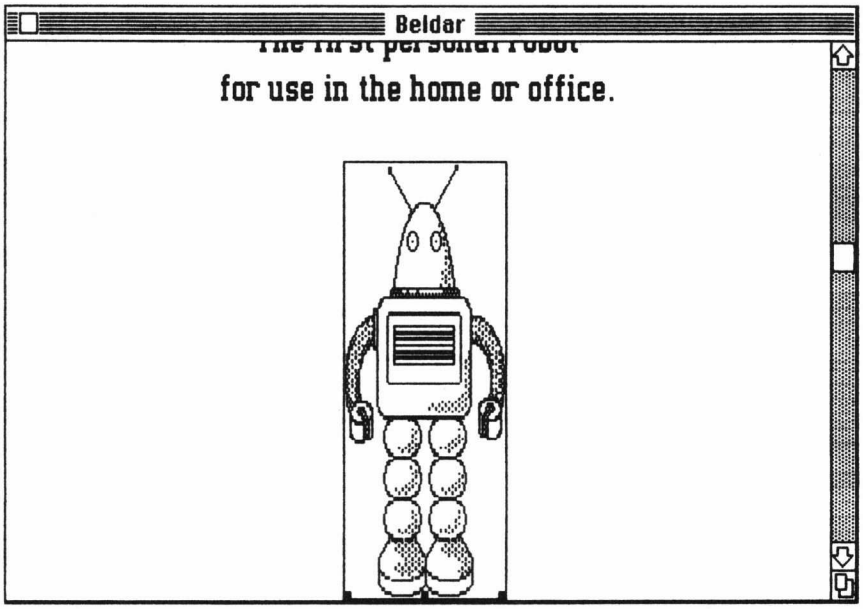
Click anywhere on the picture to activate the MacWrite selection rectangle.

Slide the picture along the horizontal a few more times in the same manner. Each time you move the picture to a new location, you can undo your last move by selecting Undo Picture Change from the Edit menu (<Command-Z> also works). When you're finished, drag it to the center of the document window so that the left edge of the border lines up with the "i" in "in" and the right edge lines up with the "o" in "or." Release the mouse button to leave it there.

Resizing Pictures in MacWrite

Though pictures in MacWrite may only be moved back and forth across the page, you can resize them using the three small black boxes that appear along the bottom edge of the selection border. Each of the three blocks resizes the picture according to a different orientation. The middle block moves the bottom border to lengthen or shorten the picture. The two corner boxes each vary the bottom and corresponding edge so that you may change the width and length of the picture.

Place the tip of the arrow pointer on the middle block along the bottom of the selection border. Drag the border outline down an inch or two and release the mouse button. You've just turned your robot into a basketball star.



Place the tip of the arrow on any of the three blocks of the selection rectangle to stretch or shrink a picture. Cancel your editing with Undo Picture Change from the Edit menu.

Before clicking anywhere in the document window, select Undo Picture Change from the Edit menu to restore the robot to its original dimensions. To shrink the robot, place the pointer on the middle block again and drag the border outline toward the top of the screen. Release the mouse button when the robot is about the size of a postage stamp. Notice that every time you resize the robot it does not become distorted or overly grainy with pixels. One of the drawbacks of using the selection rectangle in MacPaint was its tendency to distort selected images you were trying to resize. The MacWrite selection border seems to do a better job.

Select Undo Picture Change once again to return the robot to its original size. Then place the tip of the arrow pointer on the block at the bottom left of the selection border. Drag the border outline down and to the left. This will both widen and lengthen the robot. If necessary, scroll the document window down a few lines to give yourself more room to work. As you drag the border, notice only the bottom and the edge from which you drag are moving. The opposite vertical edge and the top of the border remain stationary, acting something like the pivot point of MacPaint's predefined shapes. (You cannot fold pictures in MacWrite over themselves as you can in MacPaint.) Release the mouse button and watch the magnified robot jump into its new position. Using the selection border in this fashion lets you customize every picture you paste into MacWrite. You can even shrink pictures for placement in headers and footers. Select Undo Picture Change again to restore the robot to its original size.

Using Text and Pictures Together

When you placed the robot in the current document, it was pasted at the insertion point, which, in turn, was forced to the end of the picture. Moving the insertion point in this way lets you continue to add text from the inserted picture to the end of the document. If you place the insertion point ahead of a picture and add new text, all your typing stays above the picture, which is continually forced farther and farther down the document. To illustrate, move the I-beam to the blank line between the robot's head and the last line of the announcement. Then click to place the insertion point. Because you are still in center-justification, the insertion point waits in the middle of the line. Type a line or two of anything into the document, and watch as each new line formed with MacWrite's word wrap pushes the robot down. Select Undo Typing from the Edit menu to remove this expendable text.

The only way to move the insertion point past an inserted picture is to physically move the I-beam and place the insertion point after the picture. Do this now. Move the I-beam anywhere past the robot and click the mouse button once. The insertion point should be positioned directly underneath the robot. Press <Return> once to move the insertion point another line below the robot and type the following:

designed by W.E. Coyote

If you haven't changed the font and size, this line should match the rest of the text in the document in plain 18 point Athens.

Before moving ahead, choose Save from the File menu to preserve this document. Notice that the Save box has two options along the bottom for saving either the entire document or only the text. Selecting Entire Document saves all text, formatting, and inserted pictures, if any, in the document file. Text Only, on the other hand, saves only the text of the document to the disk and eliminates all pictures, formatting, fonts, styles, sizes, page breaks, headers, and footers. In general, you will want to use the Entire Document option. However, there might be times when you want only the text of a document for later use in a Macintosh application. If you choose Text Only, make sure you have at least one copy of your MacWrite document safely stored on the Write-Paint disk or one of the data disks. Text Only documents may be opened only from the desktop Finder. Complete the save by naming the document Beldar and pressing <Return> or <Enter>.

About Time for About MacWrite

Several pages ago, when you looked at some of the desktop accessories and their uses in MacWrite, you used About MacWrite to see which version of MacWrite you were using and to check the length of your document. The small MacWrite documents you've worked with throughout this book have never occupied more than eight or nine percent of the total free memory. This translates to about 2 or 3K. Adding pictures to MacWrite documents, though, considerably increases the amount of memory you will need as well as disk space required to store it.

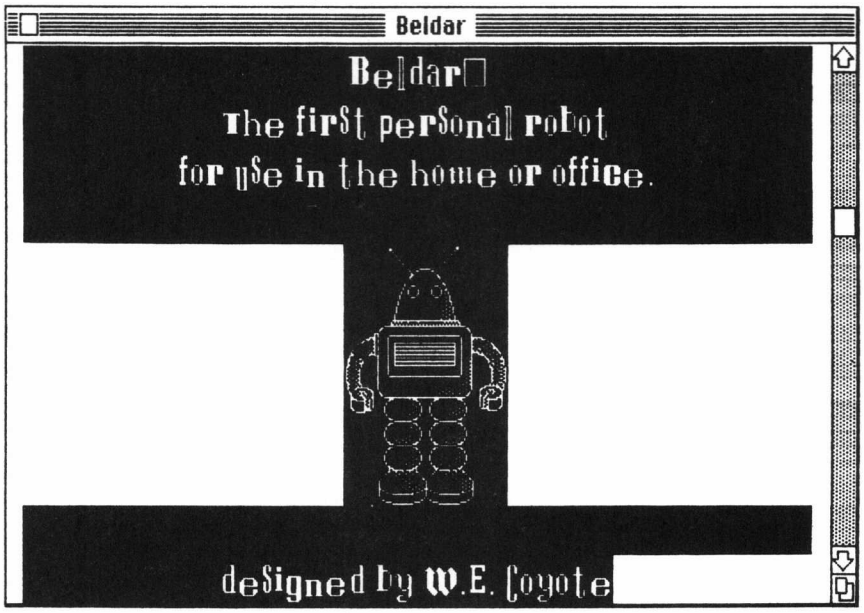
Select About MacWrite from the Apple menu to see how large the current document is. If your Clipboard is empty or nearly empty, then you should have about 84% of free memory and 14% of used memory. If your Clipboard contains a copy of the robot and some text, you might have about 79% free memory and 21% memory. The length of the document, around 14%, translates into 4 or 5K, which is certainly not large compared with a fifteen-page document that might need 28 or 30K. However, it is large when you consider there are only about twenty words in the entire document. Obviously the picture accounts for the bulk of the used memory. If you plan to create long MacWrite documents with several illustrations pasted into them, use About MacWrite frequently to see how large your documents are.

Selecting

MacWrite's selection border is a versatile tool for resizing and moving pictures within documents. It also acts like a regular selection tool in that whatever it surrounds may be copied or cut to the Clipboard. You can thus stretch, move, and otherwise contort a selected picture, and then cut or copy it to the Clipboard for pasting into the Scrapbook, other documents, or other parts of the same document. You cannot paste a combination of text and picture from MacWrite into MacPaint. Only text is preserved when moving between applications. All pictures are lost. If you paste a combination of picture and text from MacWrite into the Scrapbook, the picture is not displayed but is preserved. When you pull this item from the Scrapbook and paste it into a MacWrite document, the picture returns along with the original font, style, and size.

You may also select a combination of text, rulers, and pictures in MacWrite by dragging the I-beam across the target area. These selections may then be edited. Font, style, size, and ruler changes do not affect pictures. As an example, scroll to the bottom of the last line of the document and place the insertion point there. Now drag the I-beam upward, selecting both the text and the picture. End the selection by including the name Beldar in the middle of the document. Go to the Font menu and select San Francisco (use London if you don't have San Francisco available to you). All the selected text will change to the new font. The picture will remain unaffected. (Notice that the trademark

symbol after the word Beldar is replaced by a small square in the San Francisco font. This is because San Francisco does not include most of the Option key characters as part of its character set.)



Both text and pictures may be selected and edited using the Edit menu commands. Font, style, and size changes have no effect on selected pictures.

Leave the selection intact and select Copy from the Edit menu. This readies the text and the picture on the Clipboard for pasting to a variety of locations. Select Show Clipboard just to see how the selection is represented. Resize the Clipboard window if you want to get a better view of its contents. Close the Clipboard window by clicking in its close box when you're finished looking.

Printing Beldar

To print your document, select Page Setup from the File menu, if necessary, to set the paper type and the orientation of the document on the printed page. Then select Print from the File menu. For the first printout of Beldar, make sure that Tall orientation is selected in the Page Setup box and Standard quality is selected in the Print box. Click the OK button to initiate the printout. Once finished, select the Page Setup command from the File menu. Click in the Tall Adjust circle to select proportional printing for the picture within the document. Select Print again and click the OK button to start the printout.

When this second printout is finished, remove both from the Imagewriter and place them side by side for comparison. The first printout looks pretty much like the document does on the screen. The Tall Adjust printout, however, prints darker, larger letters, and expands the robot about ten percent horizontally. Deciding which looks better is a matter of taste. You have to choose between Tall and Tall Adjust depending on the nature of your documents. The final Page Setup orientation option, Wide, which prints sideways on the paper, is also available for documents with both text and pictures. The appearance of the printouts resembles Tall Adjust with its larger letters and slightly expanded pictures.

Closing Beldar

Close the document window by clicking in its close box. You do not need the document anymore for this book. However, at the end of this chapter you will briefly encounter the Beldar document on the Macintosh desktop.

More MacWrite Wisdom

Congratulations! You're finished with the MacWrite tutorial. Believe it or not, you're already a bona fide MacWrite expert, capable of creating sophisticated documents with a variety of formats, fonts, styles, and even illustrations.

What follows is not a working session with MacWrite and the Macintosh, so you can leave your computer alone for a while. The next few pages present facts and hints about how you can apply what you've learned to your daily writing situation.

Moving Selections Between MacWrite Documents

Being able to move selections between documents is an important feature of word processors. Frequently, you will find yourself wanting to use a passage from one document in another, such as writing several reports or letters on a single topic, each intended for a different audience. Let's say you have different opening remarks in two reports, but still want to use the same body of text in both versions of the document. Instead of typing two complete versions, you can simply select the affected passage, cut or copy it to the Clipboard, close the current document, open the new one, and paste the contents of the Clipboard into its new position. If you know you will use a particular passage in several different documents, it's a good idea to paste the passage into the Scrapbook. This stores it safely and lets you use the Clipboard for other editing chores.

You might also find it necessary to create a separate document out of a section from another document. Again, it's a simple matter of placing the selection on the Clipboard. Then you can close the current document, open a fresh MacWrite document with New from the File menu, and paste the Clipboard contents into the untitled document. Make any additions or changes you need and save it as a separate document.

Whenever you're moving selections with the Clipboard, remember its contents are volatile and are replaced with each new cut and copy. Paste important passages into the Scrapbook.

Using Save As

Like Save, Save As from the File menu lets you save your current MacWrite document to the disk. Unlike Save, which saves under the name in the title bar of the document window, Save As lets you save under a new name, thereby creating a new document on the disk and replacing the current document in the window with the new one. The title bar of the document window reflects this change as it displays the new document name. Subsequent saves are stored on this new document.

Save As lets you create several versions of your work to the disk. Each one may then be opened and edited independently of the others. Writers thrive on the ability to edit their work, and as you've seen, MacWrite's simple editing features are a writer's dream.

Using More Than One Disk and/or an External Disk Drive

If you decide to save some or all of your MacWrite documents to a disk other than the Write-Paint disk, you can choose either Save or Save As and then select the Eject button to remove the disk from the drive so that you may insert your data disk—like the ones made in the second chapter—and complete your save. If you have the Macintosh external disk drive connected to the computer, a button labeled Drive also appears in the Save and Save As box. Clicking the Drive button activates the external disk drive and displays its name in the Save or Save As box. Always remember to keep the disk with your applications and system files—Write-Paint in this case—in the internal drive, and to leave the data disk, which does not need the system files, in the external drive. Having two disks available at once speeds the entire save-and-return process considerably.

Opening documents from within MacWrite using the Open command also lets you take advantage of a second disk or the external disk drive in exactly the same way as with the two Save boxes. If you want to open a document from another disk, click on the Eject button to remove the disk from the internal drive and insert your other disk. The name of that disk and all its MacWrite documents will be displayed in the Open box. Select the name of the document you want to open and then click the Open button. Opening from a disk in the external disk drive follows the same steps as above, only you click the Drive button to display the new disk's contents in the Open window. Selecting and opening are the same.

Printing Long Documents

MacWrite documents are limited in length, as you've seen in this chapter, to about ten single-spaced or twenty double-spaced pages. This minor shortcoming, due to a lack of random access memory, is easily overcome by breaking your writing into ten to twenty-page segments, and then editing each one as a section or chapter of a larger work. When it comes time to print out this long document, you will want to have all the pages numbered continuously. MacWrite lets you print out a long document by printing out its component documents one by one, in order. Printing several documents at once is often called "chain printing" because you print each link (document) of a chain (the entire document).

The procedure for printing several documents back to back is simple. First open the initial document in the series. If you are within MacWrite, this is done with the Open command. If you are at the desktop Finder, select the document icon and choose Open from the File menu. Check Title Page if you wish to remove the header and footer (if any) from the first page of the printed document. If this is the first document to be printed, the page numbering begins at one as usual. Select Page Setup from the File menu if you need to change the paper size settings or the orientation. Finally, select the Print command from the File menu and change any print specifications that need resetting. Click the OK button to begin the printout.

When the first printout is complete, choose the Open command from the File menu to open the second document to print. Open this document and check the status of Title Page from the Format menu. If you want the header and footer to print out on the first page of this document, make sure Title Page is unchecked. To set the page numbering so that it follows the last page of the first document, select Set Page # from the Format menu. When the box appears on the screen, type in the new page number, which should be one greater than the length of the previous document. Check the printout of the first document for its length. Click the OK button to confirm your entry. The new page number is displayed in the header or footer. Select Page Setup if you need to reset the paper size or orientation. Select Print, set the specifications, if necessary, and click the OK button to begin printing this document. Repeat these steps as many times as necessary to print out the entire long document. Remember to check the status of the Title Page option and to set the page numbering with the Set Page # command.

The only drawback to printing a long document in this fashion is that every new document starts at the top of a new page. This causes unsightly gaps in the text. Of course, it's not easy to constrict your writing so that every single MacWrite document is an autonomous section—your topic and your better sense as a writer should prevent you from following such an arbitrary restriction. The solution? Live with one of MacWrite's minor flaws for the time being. Future versions of MacWrite will undoubtedly correct this glitch.

Creating Special Pages for Printouts

If you need to create printed documents with less than a full page of text on some (or all) printed pages, you can override MacWrite's default page break by selecting Insert Page Break from the Format menu. Insert Page Break places a page break at the current position of the insertion point. This lets you make separate pages with less than a full page worth of text. Inserted page breaks may be removed by clicking on the page break area to select it, and then deleting it with the Backspace key or the Cut and Clear commands from the Edit menu.

Printing from the Desktop Finder

Printing MacWrite documents need not be done from inside the application itself. You can print directly from the desktop by selecting the icon(s) for the MacWrite documents you wish to print and then select Print from the desktop File menu. MacWrite itself is opened, but the selected documents are not. Instead, printing takes place from the empty MacWrite desktop. The advantage to this is that you don't have to open the application and the document every time you want a printout. Instead, the Print box appears on the screen asking you to set the quality, number of copies, type of paper, etc.

You do lose several printing options when you print from the desktop. Access to the Page Setup and Set Page # commands is eliminated, which means you cannot vary the sizes and types of paper you are using. Neither can you chain print because you can't number the pages of a long document consecutively. If you select several documents from the desktop for printing, the Print box only appears once in MacWrite. After you select the appropriate settings, *all* documents are printed back to back using the same specifications. This is fine if you want the same type of printout for all your documents, but is unworkable if you want to print some documents with High quality, others with Draft quality, etc. Printing from the desktop is most convenient when you want to print out a series of documents for your own editing and review. It's a handy way to print several Draft quality documents without having to open and close each one individually in MacWrite. When all the selected documents are printed, you are returned to the desktop, not MacWrite.

Some Final MacWrite Words

MacWrite is a truly remarkable word processor. No other word processor that's as easy to use even comes close to matching its sophistication and elegant simplicity. Of course, it isn't perfect. There are things MacWrite cannot do that other word processors can do routinely. But every word processor is lacking some feature. There is no perfect processor for every use. Context determines usefulness.

If you are wondering what some of the things MacWrite cannot do are, here's a partial list:

* Automatically index your document, create a table of contents, bibliography, or footnotes.
* Run a spelling or grammar-checking program.
* Move selected text between documents with one command.
* Write selected text to another disk with one command.
* Edit more than one document at once in separate windows.

It's simply a matter of time before some of these items, perhaps the first two, become available either as part of updated versions of MacWrite or as separate applications you run along with MacWrite. As for reading and writing selected text, which is a very useful editing feature, you can do it in MacWrite via the Clipboard and a little imagination. You can't do it in one fell swoop. Again, further enhancements to MacWrite might well make this possible. As for using more than one window to edit documents simultaneously, Apple had to give you at least one reason to buy a Lisa.

Quitting MacWrite

Close any open document and windows you have on your screen by choosing Quit from the File menu. If you wish to save your changes before quitting, click the Yes button. Otherwise, click No. After a few seconds you return to the desktop Finder with a cluttered open Write-Paint disk window. If you've followed the chapter's instructions to the letter, you should have five MacWrite documents saved on the Write-Paint disk: First Words, ACME Memo, Alice, Mines, and Beldar.

In addition, you should also see the Sample Memo document that came with the Write-Paint disk. Unless you have saved other documents or have considerably altered the five documents created in this chapter, you have about 40K of free space left on your disk, which means the above documents occupy around 22K.

Making Folders and Backing Up

Because you have finished using these five documents for now, it's a good idea to copy them to the data disks, Work Disk 1 and Work Disk 2, for long-term storage. Later, if you or a friend is reviewing this book, you can copy these documents from the data disks back to the Write-Paint disk and avoid having to retype each one.

You might want to put the documents into their own folder before moving them to the other disks. Make a folder by selecting the Empty Folder and choosing the Duplicate command from the File menu (<Command-D> also works). Drag the copied folder to a free space on the desktop and rename it MacWrite Examples. Then select each of the five MacWrite document icons and the Sample Memo document icon and drag them one by one over the top of the MacWrite Examples folder and release the mouse button to place them inside. Make sure the folder icon is selected before you release the mouse button. Otherwise the icon does not go into the folder. It sits on top of it.

If you like, use the Shift key and the pointer to select all the document icons at once and place them into the MacWrite Examples folder. Hold down the Shift key while you click on each icon to select it. Then drag all the icons, en masse, to the folder and release the mouse button. When you have filled the MacWrite Examples folder with documents, open its window by double-clicking on the icon. Resize the window to bring the icons into view. You should see six items occupying around 22K in the folder. Close the MacWrite window on the desktop by selecting Close from the File menu, then select Eject to remove the Write-Paint disk from the drive. (A procedure for two disk drive Macintoshes is outlined at the end of this chapter.)

Insert Work Disk 1 and wait until its icon appears on the desktop. Drag the MacWrite Examples folder icon over the top of the Work Disk 1 icon and release the mouse button. You will now begin a series of disk swaps, exchanging the Write-Paint disk for the Work Disk 1 disk. Follow the Macintosh's instructions for inserting disks. Before you begin the exchange, you should see a box with a message telling you there are six files to copy. Copying documents in this fashion copies both the documents and the folder to the data disk. This saves you from copying each document individually and then having to create a folder on the data disk.

When all the documents have been copied, close all windows on the desktop with Close All from the File menu. Then open the Work Disk 1 icon (it doesn't matter whether or not it's in the disk drive) and look at its contents. In addition to the Art Folder, Writing Folder, and Font Mover application you placed there at the beginning of this book, you should

also see the MacWrite Examples folder (which you can place in the Writing Folder if you like). Open it to inspect its contents: all the documents you created in this chapter. When you're finished looking, close all windows on the disk and eject it from the drive.

Double-backing

Because the work you create with MacPaint and MacWrite is unique, you should make every effort to guard against losing it. One of the best ways is to store all your documents and applications on at least two disks. Work Disk 2 is for exactly this purpose. All the work you store on Work Disk 1 should be backed up again on Work Disk 2. The procedure is the same as before. Close all open windows on the desktop to clear up any clutter, then eject whichever disk is currently in the drive. Insert Work Disk 2 and wait until its icon appears on the desktop. Open the Write-Paint disk window and drag the MacWrite Examples folder icon to the Work Disk 2 icon. Release the mouse button to begin the copying process. You will be told when to insert each disk by the Macintosh. Follow its instructions. It knows what it needs and when it needs it. When the copying process is complete, close all open windows on the desktop and insert the Write-Paint disk into the disk drive (if it's not already there).

Cleaning House

Open the Write-Paint disk window and adjust it, if necessary, to see the MacWrite Examples folder. Place the arrow pointer over the icon and drag it to the trash can, releasing the mouse button when the trash can becomes selected. This lets you remove all the MacWrite documents at once. Open the trash can window if you want to see exactly what's inside. In any case, select Empty trash from the Special menu. This should return you to nearly 60K of free space on your disk. Of course, if you have other applications or documents on the Write-Paint disk, you may have less available space. Removing these documents prepares you for the two MacPaint and MacWrite projects that will close this book. If you continue with the next chapter without removing the documents as outlined above, you risk running out of disk space and interrupting your work in the upcoming examples.

Two Disk Drive Option

If your Macintosh system includes the external disk drive, then copying the MacWrite Examples folder to the data disks is a snap. Insert Work Disk 1 into the external drive and wait until its icon appears on the desktop, then drag the MacWrite Examples folder from the Write-Paint disk window to the data disk icon and release the mouse button. The folder and the documents within it will copy automatically to the data disk. When the documents have been copied, eject Work Disk 1 from the external drive by selecting its disk icon and then executing Eject from the File menu. Insert Work Disk 2 into the external drive and copy the MacWrite Examples folder to it as well. When this is finished, remove the MacWrite Examples folder from the Write-Paint disk, following the above guidelines in the section titled Cleaning House.

Chapter 5
Putting MacWrite to Work Creating and Storing Document Templates

Creating and Storing Document Templates

As you use MacWrite on a regular basis, you will find yourself creating only a few different types of documents. Perhaps you're an avid letter writer and also sit down and dabble in fiction occasionally. If this is the case, you've probably latched on to two document formats, one for your letters and one for your fiction, and routinely set the rulers, headers, and footers to this format each time you open a new document in MacWrite. This is a perfectly acceptable way to begin each writing session with MacWrite. However, MacWrite provides a means for you to store your document formats and automatically open an empty document with the formats already set. All you have to do is start typing.

Storing formats in this manner is often called creating a *template* (sometimes it's referred to as a *boilerplate*). Essentially, this is a blank document with certain preset options that don't normally appear with the default MacWrite document. These preset options can include ruler settings, headers, footers, fonts, styles, and sizes, all customized

to accommodate your writing. Template documents may even contain text. A perfect example of a template document is a form letter. The template document for a form letter contains the formatting and text of the letter and simply leaves blank spaces where your name and address appear. When the letter is ready to be mailed, the pertinent information is typed into the template (if it's a large-scale mailing, a computer types in the relevant information), and it's ready to go.

The advantages of using this system should be obvious. If you use the same document format over and over, or need to create documents that say the same thing with minor variations, using a template eliminates the need to type each document on an individual basis. Instead, you merely open the template, make any necessary changes, close it, and print it out.

Though you might not be sending out form letters, you can use the template concept for your own work, whether you write letters and a little fiction, or write memos to people in your office. Any document format that you use repeatedly is a perfect candidate to make into a template document.

Making a Template

Creating a template document in MacWrite is quite simple. All that's required is for you to adjust the opening ruler, insert any other rulers if necessary, display a header and footer if you like, and then save the document without having typed a single character into it. Then, every time you want to create a new document with this format, simply open the template, add and edit your text, and save the document to a new name using the Save As command from the File menu. Using Save As ensures that your template is not written over. You can create and use any number of template documents in this fashion.

Though you know which formats work best for your writing, the following section outlines the procedure for creating and storing two templates: one for letters and one for reports and longer documents.

Letter Template

Some people might argue that writing letters with a computer, even one as personal as the Macintosh, is a cold, technological way to communicate. There may be some truth to this. After all, you might not want to write to your true love on a word processor. If that's the case, by all means break out the pen. But writing letters with MacWrite is an effective, fun way to keep your correspondence up to date with the latest news. It's also a godsend for people like me who hate to use typewriters and have chronically illegible handwriting.

The first step in creating the letter template is to open MacWrite if you're on the desktop Finder. If you are already inside MacWrite, close all open windows and select New from the File menu to open a blank MacWrite document. During the process of creating this template, the ruler and header and footer settings will be changed to create a suitable, effective format. You may, however, make your own settings.

Your new document opens with the familiar first ruler at default settings, and the blinking insertion point is at the beginning of the first line of the document. The default ruler's settings are fine for the beginning of the letter, where you'll type your name and address, the date (placed on the right side of the page with the Tab key), and your recipient's name and address. Press <Return> once to drop the insertion point one line. Now select the Insert Ruler command from the Format menu. This places a duplicate of the first ruler at the insertion point. Move the arrow pointer to this inserted ruler and drag the indentation marker from its current position at 1⅛" to the 1¼" position. Now select the middle line-spacing box for one and a half line spacing in the text of your letter, and full-justification for your text by clicking on the far right justification box along the bottom of the ruler. You probably won't need to use tabs in the body of your letter, so drag the tab marker from its 5½" position along the inch scale down to the bottom of the ruler and release the mouse button to remove it.

Because you want your letters to be as readable as possible, it makes sense to add both a header and footer to increase the top and bottom margins on the printout and display the page numbering. Select Open Header (Show Header with version 1.0 of MacWrite) from the Format to view the Header window. Press <Return> once to add an extra blank line between the top of the page and the first line of text in the document. Click anywhere in the document window to display the header. You should see it as two blank lines before the first ruler.

Now select Open Footer (Show Footer in version 1.0) from the Format menu to view the Footer window. This is where you will display the page numbers in your letter. Select center-justification by clicking in the

second justification box along the bottom of the ruler. This places the insertion point in the middle of the window. Press <Return> once. Now type a hyphen or minus sign and follow it with eight blank spaces by hitting the spacebar eight times. End the blanks with another hyphen. Now drag the page number icon with the pound sign (#) from the top of the Footer window and place it directly between the two hyphens by releasing the mouse button. Hit <Return> once more to add another blank line to the footer. Display the footer in the document by clicking anywhere inside the document window.

When you've made these adjustments, scroll to the top of the document and inspect the two rulers and the header. Type the name and address between the two rulers. Remember that whatever you type ahead of the second ruler pushes that ruler farther down in the document. If you want to start typing with the text ruler, move the insertion point by clicking anywhere after the inserted ruler. Scroll to the bottom of the document and look at the page numbering. You should see the number 1 right between the two hyphens you typed into the Footer window.

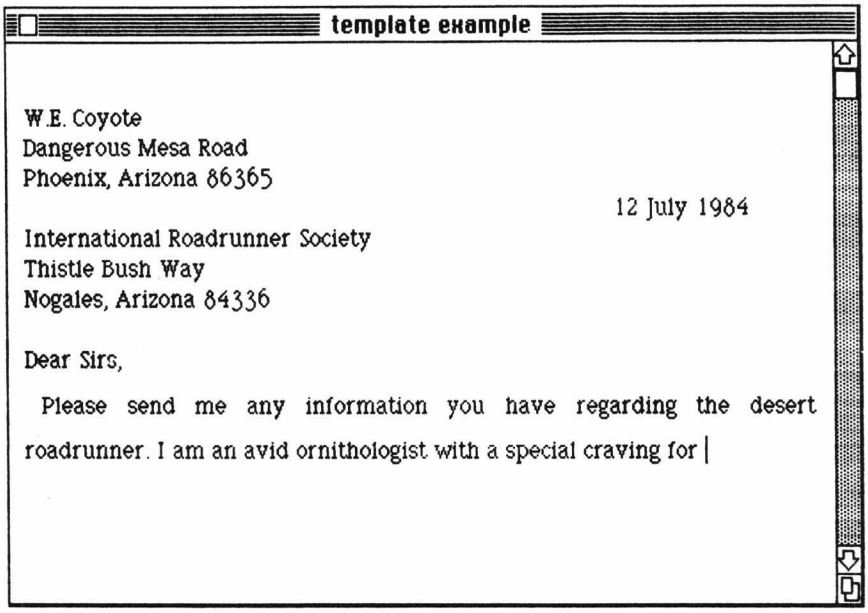
Saving the Template

When you have finished with the above instructions, select Close from the File menu. Click the Yes button indicating you want to save your changes. When presented with the Save box, type in the name Letter Template for the document. Hit <Enter> or <Return> to save and close the document. Once the document is closed and you are staring at the empty MacWrite desktop, select Open from the File menu. The Open box will list any MacWrite documents you have on your disk along with the newly created Letter Template document. Select Letter Template and click the Open button to bring its window back into view.

When the document reappears, you should see both the inserted ruler and the first ruler, and the header and footer. It's generally a good idea to store all your templates with the rulers, headers, and footers displayed. This helps you identify different formats within the document. Once you start using an opened template, you can hide the rulers from view after you've become familiar with the formats. Move the document window around by the title bar to view the Header and Footer windows behind it. Scroll to the bottom of the document to view the page number.

Using Letter Template

Since the Letter Template has been saved to the disk, reopening it means you can add and edit text without affecting the document on the disk. Look at the following illustration to get an idea of what letters look like using this format.


template example
W.E. Coyote
Dangerous Mesa Road
Phoenix, Arizona 86365
12 July 1984
International Roadrunner Society
Thistle Bush Way
Nogales, Arizona 84336
Dear Sirs,
Please send me any information you have regarding the desert roadrunner. I am an avid ornithologist with a special craving for

A letter fragment using the Letter Template format.

Open the Letter Template document every time you want to write a letter and simply start typing (move the insertion over the rulers, if necessary). When it's time to make your first save to the disk, you *must* choose Save As from the file menu to rename the document, so as not to save your writing with the template. Subsequent saves will be made to the new document name, in which case it's okay to use Save, Close, and Quit. When you've finished with your letter and closed it, it appears as a separate document, distinct from the template. Just remember to use Save As to rename the document and you'll always have your Letter Template handy for that long letter or quick note.

Creating a Report Template

If you do any kind of long expository writing, you need a consistent, simple document format that covers your page with text in a readable fashion. In addition to this, you should exploit MacWrite's header and footer for page numbering as well as its date and time capabilities. These help you keep track of various versions of a document. If you decide to change your header and footer for a final printout later, you will change them in your report, not the template.

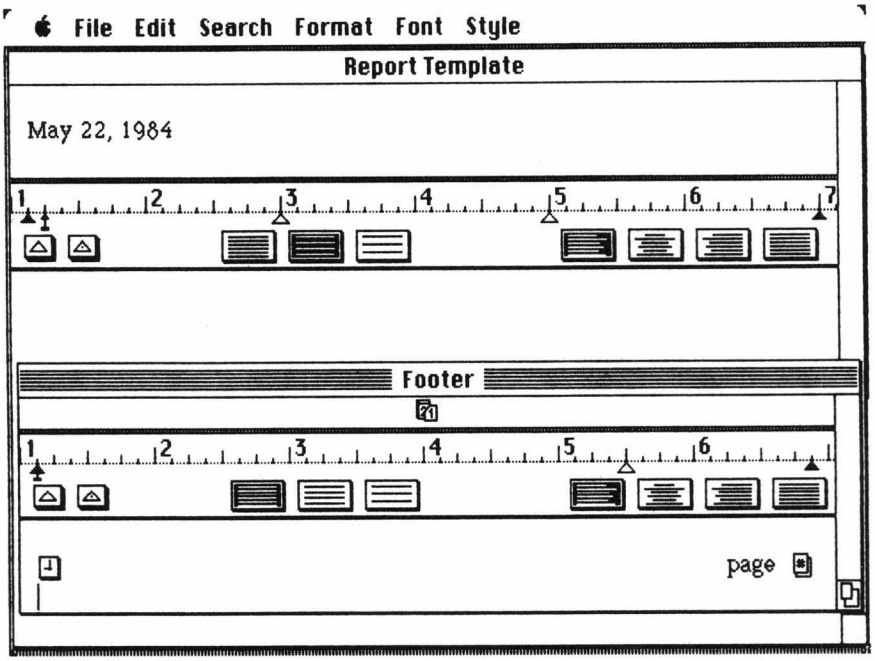
Close any open windows on the MacWrite desktop and select New from the File menu to open a fresh document. Creating this template document follows the steps outlined above. If you want to customize this template for your own purposes, by all means, go ahead.

When formatting a report template, you should keep in mind that you want your writing displayed simply and effectively on the page. To this end, you'll change the first ruler's settings to handle almost every situation you might come across. First, drag the indentation marker from its default setting at 1⅛″ to the 1¼″ position along the inch scale. Now drag the tab marker from its 5½″ position to the 5″ mark. Drag a regular tab from the tab well at the bottom left of the ruler and place it at the 3″ mark. This gives you two tabs in case you need to make columns within your report. Finally, select one and a half line spacing. This gives your writing room to breathe on the page without wasting as much space as double-spacing.

Select the Open Header (Show Header for version 1.0) command from the Format menu. Leave the window's ruler settings alone and press <Return> once to add an extra line to the top margin. Now drag the date icon from the top of the Header window and place it at the beginning of the second line in the window, aligning it carefully with the 1¼″ left margin. Press <Return> once again to add another blank line to the header. Click anywhere inside the document window to display the header. It should appear above the ruler with the full date written along the left edge of the page, flanked by single blank lines.

Select Open Footer (Show Footer in version 1.0) from the Format menu to view the Footer window. Leave the ruler settings untouched and press <Return> once. Now drag the clock icon from the top of the Footer window and place it on the second line, along the left edge, exactly as you placed the date icon in the header. Then hit the Tab key to send the insertion point across the line. Press the spacebar a few

times and type the word "page." Drag the page number icon from the top of the window and place it under the 6⅞" position on the inch scale. Make sure you leave at least one blank space between the word page and the page number icon. Click inside the document window to display the footer.



Footer and displayed header for the Report Template.

Now scroll through the document and see that the header and footer are both properly displayed. If something looks off, go back and fix it by activating the Header or Footer window from beneath the document window. Otherwise, choose Save from the File menu and name the document Report Template. Click the Save button to save the document on the disk. Close the template document after you have saved it.

Using Report Template

Open this template when you have a long story or paper to write. The header and footer you have set up suit this template particularly well for writing drafts. Each time you print out a document made with this format, you'll know both the date and time it was made. Later, you can change the header and footer to reflect the name of the document, the subject, etc. In any case, remember to use Save As to rename and save the initial version of any document created with the Report Template.

Going Back to the Desktop

After you have created and stored these two template documents, and any others that came to mind as you read these last few pages, quit MacWrite by selecting Quit from the File menu. When you return to the desktop, you should see the two template documents, Letter Template and Report Template. Whenever you want to open a template from the desktop, simply double-click the icon and you will automatically enter MacWrite and the template document. Make your first save in MacWrite to another name and you have mastered everything you'll ever need to know about templates. Because these templates only use about 2K worth of disk storage space, you can leave them on your Write-Paint disk and open them whenever you need a particular format. To this end, it helps to organize your disk window by placing the templates into a folder named—what else—Templates.

Select the Empty Folder icon by placing the arrow on it and clicking the mouse button. Then select the Duplicate command from the File menu. Drag the Copy of Empty Folder icon to a clear space in the disk window or on the desktop, hit the Backspace key to remove the old name, and type in the new name, Templates. Make sure the copied folder is selected before you type. Otherwise, you might rename another icon. Drag both template document icons into the Templates folder, then move the Templates folder back to the window from the desktop.

Protecting Your Templates

Because these templates might see more action than any of your other Macintosh documents, you should protect them from accidental deletion by locking them from the Get Info window. Open the Templates folder by double-clicking on it. Resize its window if necessary. Now select Letter Template, then execute the Get Info command by selecting it from the File menu or by pressing <Command-I>. Once the Get Info window opens, move the pointer to the small box marked Locked and click once to lock the document. You'll know you've locked it if a small X appears in the box. Close the Get Info window and repeat the process for the Report Template. If you wish, you may even lock the Templates folder, but this is inconvenient because you must unlock it every time you want to add documents to it.

Locking through the Get Info window prevents you from dragging either the folder or the documents to the Trash. You must first unlock the document or folder you want to place into the Trash. Even unlocked documents in a locked folder cannot be deleted without first removing them from the folder.

Because the template documents are fairly easy to make, there's no pressing reason why you should back them up on your data disks. Of course, if you'd feel safer having them backed up, eject the Write-Paint disk, insert the data disk, and drag the Templates folder to the data disk's icon. Follow the Macintosh's prompts for inserting the correct disk. When you've finished, the Templates folder and its contents will be tucked away safely on the data disk.

Templates in MacWrite provide you with a fast, easy way to start a document. You don't have to fuss with rulers, headers, or footers and decide what each should do. If you feel inspired, go back into MacWrite and create more templates or modify the ones described in this section. Otherwise, a full-scale MacPaint-MacWrite project lies ahead in the concluding section of this book.

Putting MacPaint and MacWrite to Work Together
Creating a Letterhead Template

Because the Macintosh lets you integrate pictures created with MacPaint into text written with MacWrite, you can illustrate and extend your thoughts in a way that was impossible before the Macintosh. You've already seen some aspects of this marriage of graphics with text in the last section of the MacWrite chapter. Now you'll apply the same principles to make your own letterhead picture inside MacPaint and then paste it into a MacWrite template document.

MacPaint First

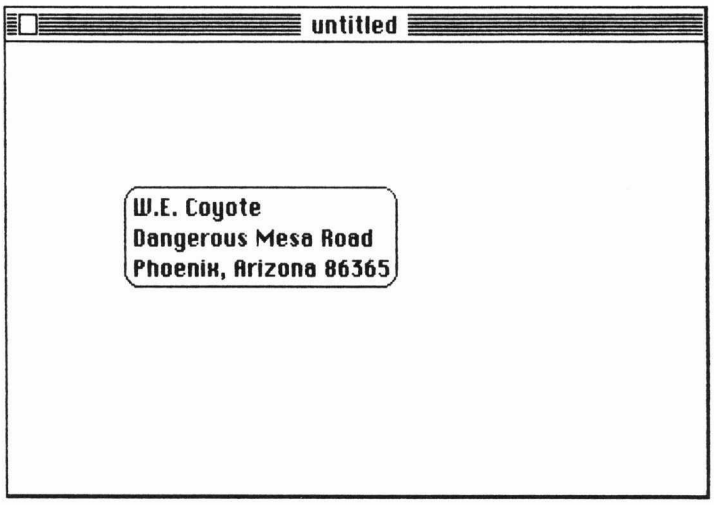
The first step in creating the letterhead image is to use the MacPaint tools you learned about in the third chapter to make the letterhead logo. Open MacPaint from the desktop by double-clicking on its icon. If you are already inside MacPaint, close the document window and select New from the File menu.

Obviously, you will want to create a letterhead with your own name and address, but for this example, I'll use a fictitious name and address.

Select the A text icon in the tool palette. Then select plain 12 point Chicago text from the Font, Fontsize, and Style menus. Move the I-beam to the middle of the window and click the mouse button once to place the insertion point there. Then type the following:

W.E. Coyote <Return>
Dangerous Mesa Road <Return>
Phoenix, Arizona 86365

Now select the hollow rounded rectangle from the tool palette. Make sure the second border width is checked. Move the cross hair just above and to the left of the first line of the name and address. Drag a rounded rectangle over the text, being careful to place equal amounts of space between the rectangle border and the text. Release the mouse button when you've placed the shape correctly. If you want to try again, remember that Undo is tucked away in the Edit menu for just such situations.

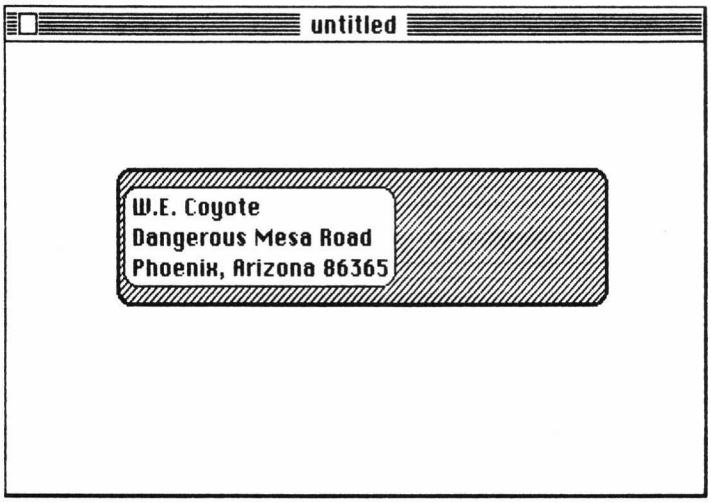


Step one in creating the letterhead picture.

Leave the rounded rectangle selected in the tool palette but change the border width to the third, two-pixel-wide border by clicking on it. Place the cross hair above and to the left of the enclosed name and address and drag a rounded rectangle that completely surrounds the name and address. Leave a small buffer of free space between the left edge of the text border and this larger border. Stretch the large border over to the right, leaving one or one and a half inches of blank space next to the text. Release the mouse button to place the rectangle in the window.

The last step in creating the letterhead is to fill the area within the large rectangle with a pattern. Select the paint bucket icon from the tool palette and then experiment with different patterns by selecting them and filling the large rounded rectangle. Use Undo to remove patterns. When you add a pattern to the letterhead, the small rounded rectangle around the text prevents the pattern from spilling into the text area and

also keeps the background for the text white. I find the best pattern to be the forty-five degree parallel lines pattern that's located seven patterns from the left, along the bottom of the pattern palette. Select this pattern and fill the large rounded rectangle with it.



Fill the large rounded rectangle with the stripe pattern.

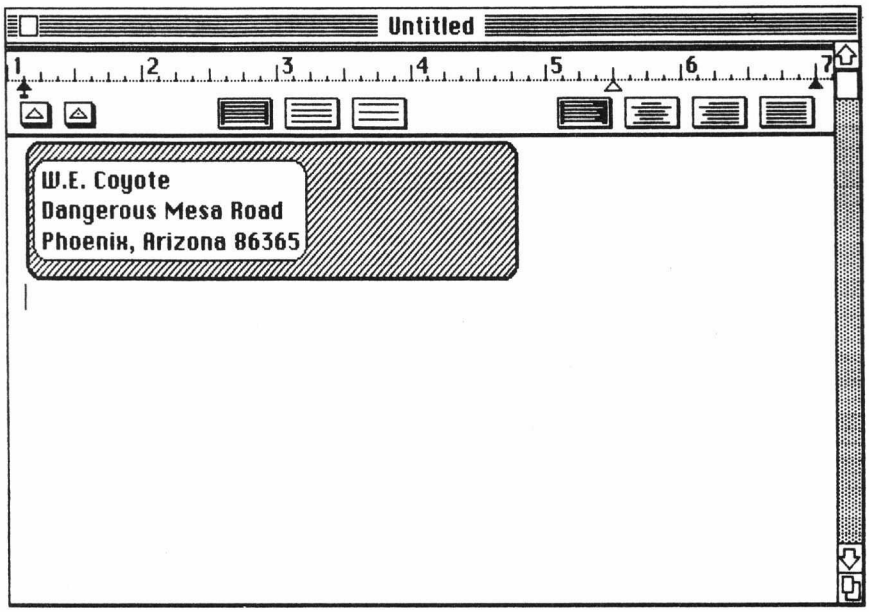
Because you want to preserve this letterhead for pasting into a MacWrite document, you have to select it to place it on the Clipboard. Select the lasso icon at the top left of the tool palette and rope off the letterhead by dragging the lasso around it completely. Remember that using the lasso for selections does not select the background, like the selection rectangle or marquee does. This makes it better suited to our purposes. Open the pull-down Edit menu and select Cut to remove the letterhead from the MacPaint document window and place it on the Clipboard. Once cut, close the document window without saving any changes. There's no need to make an entire MacPaint document out of the letterhead.

Finally, open the Scrapbook and paste the letterhead from the Clipboard into it. This ensures that you'll always have it ready if you accidentally delete it from the Clipboard before you get into MacWrite, or if you lose the MacWrite letterhead template document you're about to create. Close the Scrapbook and leave MacPaint by selecting Quit from the File menu.

Making the MacWrite Letterhead Template

Open the Clipboard on the desktop by selecting Show Clipboard from the Edit menu. You should see the letterhead within the Clipboard window. If you don't, open the Scrapbook, page to the letterhead, and copy it back to the Clipboard. Now close the Clipboard window and open MacWrite by double-clicking on its icon.

Once inside MacWrite, staring at a blank document, you will follow most of the same steps you did to make the format template in the beginning of this chapter. First, of course, is pasting the letterhead from the Clipboard into the document itself. Select Paste from the Edit menu and watch as the letterhead appears at the top of the screen, just below the ruler. Also notice that the insertion point has been pushed to the end of the inserted picture. Click on the picture to display the selection border. Move the picture along the horizontal by dragging either edge of the border. You'll find the letterhead looks best when it's flush against the left margin. Place it there and click anywhere outside of the picture to remove the selection border. There's no need to resize this picture, but you always have the option of using the three blocks at the bottom of the selection border if you want to resize pictures within MacWrite.



Paste the letterhead art from the Clipboard into a new MacWrite document.

Setting the Format

Once you've placed the letterhead at the top of the document, along its left edge, all you have to do is set the format for your letter. Because you have already created a letter format in the beginning of this chapter, you'll use most of those settings again in the current document. Make sure the blinking insertion point is at the end of the letterhead picture. Select Insert Ruler from the Format menu to place a ruler immediately after the picture. Because this ruler is a duplicate of the first ruler, you don't have to change any of its settings. It's fine for typing in the date and address of your letter's recipient. Press <Return> once to add a blank line to the document and then select Insert Ruler once again. This ruler sets the format for the text of your letter. Drag the indentation marker to the 1¼" position from its default at 1⅛". Then select one and a half line spacing and full-justification with the boxes at the bottom of the ruler. Remove the tab marker from the 5½" mark if you don't need a tab in your letters.

Letterhead Headers and Footers

Because you want to display the letterhead prominently in the document, you should add a blank line to both the top and bottom margins of the page. This frames the text of the letter nicely. To this end, select Open Header (Show Header in version 1.0) and press <Return> once when the window is open. Click anywhere in the document window to display the header, and do the same for the footer. You probably don't want to show page numbering, the date, time, or any other text at the bottom of the page (you certainly don't at the top), so don't add any of these to the header or footer. If you know you're going to write letters several pages long, you might include the page number in the footer as you did in the Letter Template document.

Saving Letterhead Template

This ends the creation of the letterhead template. You've placed the picture at the beginning of the document, set the rulers for formatting your letter, and added a blank line to the header and footer. Save your letterhead to the disk by selecting Save from the File menu. Type in the

name Letterhead Template and press <Return> to begin the save. Once saved, quit MacWrite by selecting the Quit command from the end of the File menu.

Your new letterhead template can now be used like any other template. Open it to start a letter. Make your first save to another name so as not to overwrite the template and you'll always have your custom letterhead ready for any letter-writing situation.

Organization

If you like, you can place the Letterhead Template icon into the Templates folder for organizational purposes. In addition, lock the Letterhead Template document by opening its Get Info window and clicking in the Locked box. This prevents you from accidentally placing it into the Trash. You might also want to back up the entire Templates folder on the data disk by inserting the data disk and dragging the folder to its icon. Then follow the Macintosh's instructions for disk-swapping. Doing this stores your templates safely in case they are accidentally lost or you remove them from the Write-Paint disk to make room for another project.

Appendix A

Installing and Using the Macintosh Programmer's Switch

One of the items included with the Macintosh system package that holds your *Macintosh* reference manual, System Disk, Guided Tour disk, cassette, and blank disk, is the Macintosh programmer's switch. This switch, a small piece of plastic with two lever buttons marked INTERRUPT and RESET, is used primarily by people who are writing applications programs for the Macintosh. This switch lets them test programs by stopping and restarting them at will. It also provides a means of restarting the system without having to turn the power off and then on again. Turning the Macintosh's power on and off frequently is not good for the components inside the computer. The electrical surge caused by turning the power switch on can wear out the electronic parts inside the machine prematurely. The programmer's switch lets you press the RESET button instead and skip flipping the power switch. This does not cause an electrical surge in the computer but it has the exact same effect as turning the power off and on.

If you don't plan to write programs on your Macintosh, you can just leave the switch off the computer. MacWrite, MacPaint, the System Disk, and any other Macintosh application, such as a spreadsheet or

data base, do not require the programmer's switch. You should install the switch if you are going to write programs on your Macintosh, and, to be frank, there are compelling reasons to install the switch even if you're not: It can help you avoid potentially frustrating situations when working with Macintosh applications. I use the programmer's switch regularly, even though I've yet to do any programming on the computer. If you decide to install the switch, pay close attention to the following guidelines and you'll never have any trouble using it.

Installing the Switch

Inserting the programmer's switch is a simple matter of snapping it into the computer's ventilation grill on the left side of the Macintosh. Make sure your Macintosh's power is turned off. Slide the machine around on your desk so its left side is facing you. If you look along the vents, you'll see plastic ribs running perpendicular to the five horizontal cutouts. However, at the very left end of the vents, at the back of the computer, the plastic ribs are not present in the bottom three cutouts. This is where the programmer's switch goes. Inside the Macintosh, behind this grillwork, are two buttons with which the programmer's switch makes contact. When you press either button on the programmer's switch, its end presses the corresponding switch inside the computer.

Take the programmer's switch and insert it into its slot in the vent, making sure the RESET and INTERRUPT buttons are visible. Press the entire switch into the slot carefully. If it seems to jam, pull it out and try again. You should hear a click that indicates the switch is properly installed. Press both the RESET and INTERRUPT buttons a few times. They should move only a quarter of an inch or so, and should move freely. Turn your Macintosh back on and wait till the screen lights up with the question mark and disk icon. *Do not insert a disk*. Then press the INTERRUPT button, the one toward the back of the machine. If the programmer's switch is connected properly, the screen should go dark and display a sad-faced Macintosh icon with the message 0F000D underneath it. This means you made your computer very unhappy (and unusable). Bring it back to life by pressing the RESET button. The bell will ring and the question mark and disk icon will appear on the screen, waiting for you to insert a disk.

What the Programmer's Switch Does RESET

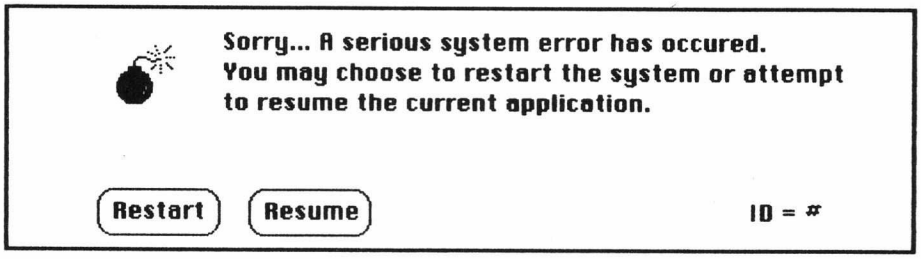
When you write programs, frequently you make mistakes that cause the computer to shut down or "crash." Often you lose all use of the mouse and keyboard, stranding both you and your disk. In this situation, the only solution is to start over by shutting off the power. If you have the programmer's switch, you can press the RESET button for the same effect. Pressing the RESET button clears the entire random access memory of the Macintosh. Whatever is in RAM when you press RESET is lost forever.

Pressing RESET while you're editing or creating a document in an application erases any changes you have made since the last save to the disk. If you are working on a new, unsaved document, pressing RESET causes you to lose the document.

Obviously, the only time you'll want to use the RESET button is when the Macintosh becomes inexplicably stuck, responding to neither the keyboard, the mouse, nor your verbal assaults. The only other time you might want to use RESET is when you have finished working with an application on one disk and want to work with another application on a different disk. Pressing RESET clears out any and all vestiges of the first disk, and eliminates the Macintosh's annoying habit of asking for the startup disk when you want to print or copy documents while using a second disk. Of course, your second application disk must have its own system documents to restart the system. Otherwise, you'll have to start the system with the System Disk, and then insert the new application. RESET is permanent! There is no Undo command to cancel RESET. Think carefully before you use it.

INTERRUPT

The second button on the programmer's switch, INTERRUPT, lets you stop an application dead in its tracks, and offers you the option of restarting the system (the same as pressing RESET or switching the power off and on) or resuming. If you elect to resume the application, you will most likely be asked to save any changes you have made to your current document. Once saved, you are returned to the desktop Finder.


Sorry... A serious system error has occured.
You may choose to restart the system or attempt
to resume the current application.
Restart
Resume
ID = #

This message warns you something has gone wrong with the Macintosh. Selecting Restart has the same effect as turning the computer's power off and on. Resume continues the current application without restarting the Macintosh.

INTERRUPT is less useful for you if you just run applications like MacPaint and MacWrite. There's no real point in interrupting your work. You can simply save or quit the application if you need to get back to the desktop in a hurry. Using INTERRUPT does, however, provide you with a way to save your work before exiting an application. If you accidentally hit INTERRUPT, it's not fatal. Just click the Resume button in the serious system error message box and proceed to save your document.

The programmer's switch can make your life a little easier at times but is by no means required equipment for working with the Macintosh. If you feel uncomfortable about the switch after having read this, don't install it. Just leave it in the plastic system case. If you install it, be aware of its uses and effects. Chances are better than good that you won't hit it accidentally (it's out of the way) and it just might help you out in a few situations.

Appendix B

Using the Font Mover Application

Font Mover is the application you saw on both the System Disk and the original Write/Paint disk (updated versions of the Write/Paint disk do *not* have Font Mover on them). If you own the original Write/Paint disk, in order to gain an extra 13K or so of space on the Write-Paint disk, you transferred Font Mover to the data disks for safekeeping. Because you didn't need Font Mover throughout the course of this book, it made sense to store it out of the way. For the purposes of this book, the disk space it freed was much more important than the application itself. Font Mover lets you go into the System file itself, the one in the System Folder, and examine all the fonts stored there. You can then copy or remove the fonts you don't need or want, thereby freeing upward of 80K of disk space if you remove all but the reserved system fonts. You won't, as a rule, want to eliminate all but the bare essentials. However, you might want to prepare several different disks with MacWrite and MacPaint (perhaps even on separate disks) that sport only the fonts you absolutely need. For example, if you write papers and reports with MacWrite but never use any but the most basic fonts, you can dedicate a single disk for this purpose, clean off the excess fonts to gain extra disk space, and then remove Font Mover and the Fonts document (created by the application) to gain even more space. The possible combinations of applications and fonts is nearly limitless.

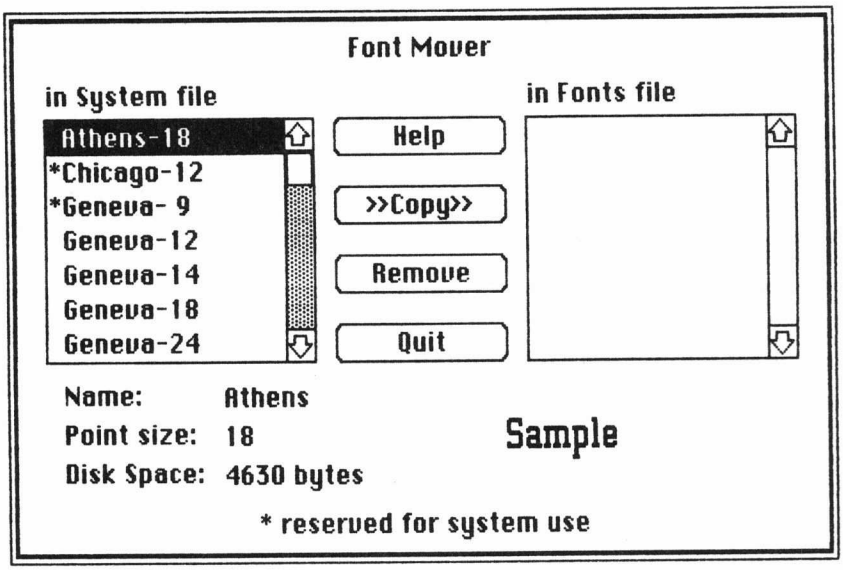
For the purpose of explaining Font Mover, this section assumes you are trying this out on a copy of your Write-Paint disk. *Do not use either of your original Write/Paint disks. Nor should you use your working copy of Write-Paint*. Make a backup of Write-Paint, copy the Font Mover application to it from your data disk or System Disk, and follow the instructions in this section with that disk. Don't risk losing something important with Font Mover (it's really almost impossible to make a mistake or do any damage) until you are more familiar with the application. You might find you don't even want to use it. Or you might find it the answer to your prayers.

Opening Font Mover

From the desktop, open your disk window and select the Font Mover application icon. Select Open from the File menu or double-click on the icon to open the application. When it opens, you'll see two small scrolling windows flanking four buttons marked Help, Copy, Remove, and Quit. The left side of the Font Mover screen lists the names of the fonts in the System file. The right side of the screen lists the fonts in the Font file that Font Mover creates. This window should be empty unless you have already used Font Mover and copied files to the Fonts file.

Scroll through the font names in the System file by clicking in the scroll bar or using the scroll arrows. There are twenty-two fonts in the original System file from the Write/Paint master disk. Newer versions of the System file contain about twenty fonts. The numbers following each name represent the point size of the font in the file. As you scroll through the names, notice that most fonts only have three or four point sizes. Other fonts, like San Francisco and Athens, only have one size. Sizes other than those listed are made by shrinking or enlarging the existing sizes. That's why a font like Athens or London looks best in 18 point, because that's the only image the Macintosh has of the font. If there were an Athens in 12 point or a London in 72 point, you would not be restricted to the 18 point size for these fonts. They would have separate images for different sizes and the computer wouldn't have to shrink or stretch the 18 point image to create every font size. Fonts marked with an asterisk cannot be removed from the System file.

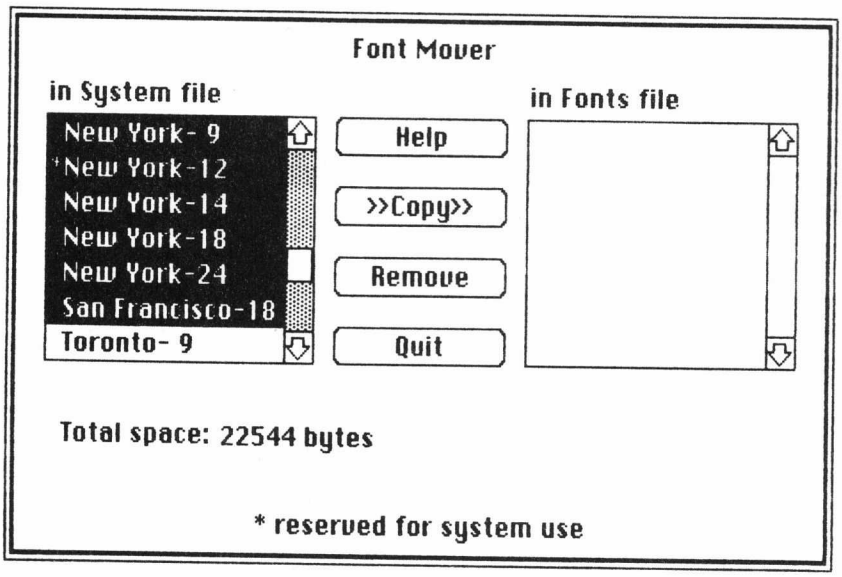
Most of the instructions you need to use Font Mover are contained within the program itself. Click the Help button to read the notes. When you're finished reading, click the OK button on the second page to return to the Font Mover screen. Select the Athens font by clicking on its name to view a sample of its text and the amount of disk space it occupies.



Select fonts by clicking once on their names. Use the scroll bars to view all the font names. Selected fonts automatically display how much disk space they occupy.

You can look at the same information for all twenty-two fonts. You can also view the total amount of disk space more than one font uses by dragging the arrow pointer across all the font names to select them. Instead of displaying an example, the name of the font, and the disk space, Font Mover only displays the total disk space the selected fonts occupy. You can use the Shift-click technique to select fonts that are not listed contiguously. If you want to see how much space all the fonts

occupy, scroll to the top or bottom of the System file window and drag the pointer vertically across the entire window. All the fonts will automatically become selected and their size (85612 bytes, or about 86K for the initial version of the System file. Newer versions of the System file contain closer to 75K.) is tallied and displayed on the bottom of the Font Mover window. Click anywhere within the blank Fonts file window to cancel your selections.



Multiple selection of fonts totals the amount of disk space used by the fonts.

Copying Fonts

The basic procedure for copying fonts from the System file to the Fonts file requires that you select the font or fonts to be copied, and then click the >>Copy>> button. The fonts will automatically copy to the Fonts file. When the copied font names appear in the Font files window, you can select the fonts to look at a sample, the disk space, etc. You can even copy them back to the System file by clicking the <<Copy<< button.

You must copy the fonts to the Fonts file before you remove them from the System file. Otherwise, you lose the fonts. Remove does just what its name implies: it removes the selected font or fonts from the file. It does not make a copy anywhere. In general, you select the fonts you want to remove from the System file, copy them to the Fonts file, and then remove the selections from the System file.

Instead of laboriously walking through each step of the copying process, the following will simply explain how much disk space is saved when certain combinations of fonts are removed from the System file. You can follow the above guidelines and the instructions from the Help button to use the Font Mover application.

Sample Runs with Font Mover

If you remove all but the four reserved system fonts (Chicago-12, Geneva-9, Geneva-12, and Monaco-9) you can free between 65K and 75K worth of disk space, depending on the fonts present. The initial version of the System file replaces New York-12 for Geneva-12 as one of its reserved fonts. Of course, doing this severely limits the work you can do in MacWrite and MacPaint. Your MacWrite documents will be limited to the standard text setting with very little room for variation in font, style, and size formatting. Using Font Mover in such a drastic way is too restrictive and eliminates most of what makes working with MacWrite so special. The four specialty fonts of MacWrite and MacPaint—Venice, London, Athens, and San Francisco—are certainly useful, but may not apply to your writing situation. Sober business reports might look awkward with 18 point San Francisco type heralding financial figures from the last quarter. Therefore, you might never need this or any of the specialty fonts for the work you do in MacWrite and MacPaint. Copying these four fonts from the System file to the Fonts file frees 14K worth of disk space, which is no mean amount, given the already cramped disks. Another way to determine which fonts are expendable is to look at the characters the fonts produce. If you absolutely hate the Geneva font, by all means remove it from the System file. Removing four out of the seven sizes (Geneva-9 [and Geneva-12 on newer disks] is reserved and cannot be removed) of Geneva from the System file saves you nearly 17K; again, no mean amount of disk space. If Toronto is a font you don't like, removing all sizes of it from the System file saves you around 24K. (Toronto is not present on newer versions of the System Disk or Write/Paint.) Removing the seven New York font sizes from an updated System file frees 27K of disk space.

Overall, Font Mover is an excellent tool for ridding your disks of unwanted fonts. Use it judiciously, however. After having worked through this book, you've probably grown accustomed to having all the usual Macintosh fonts at your fingertips. Even if you use Font Mover to remove fonts you don't think you'll ever use, the day might come when you want 24 point San Francisco for some special situation, and it won't be there. Think carefully before using Font Mover and make sure you keep an untouched copy or two of the fonts. Also note that removing a

font from the System file eliminates any mention of the font in the Font menus of both MacWrite and MacPaint.

When you have finished using Font Mover, click the Quit button to return to the desktop. From the desktop you can copy the Fonts document and the Font Mover application back to the data disk for safekeeping. Once copied, remove them from your working disk by placing them in the Trash.

Restoring Fonts with Font Mover

Font Mover is a two-way street in that whatever you remove you can replace, as long as it's been stored in the Fonts file. Replacing fonts requires only that the Fonts file be present on the disk from which you open Font Mover. You can either double-click on the Fonts icon to open Font Mover, or click on the application icon itself to do the same. When Font Mover opens, the fonts in the Fonts file are listed in its window. Simply select whichever fonts you wish to return to the System file and click the <<Copy<< button. After they're copied, click the Remove button to clear the selected fonts from the Fonts file, if you wish. When you've restored the System file, click the Quit button to return to the desktop.

New Fonts and Sizes with the Updated System Disk

The Fonts file that comes as part of the System Disk with version 1.1 of the Finder contains two new fonts, Cairo and Los Angeles, which did not appear with the initial release of the Macintosh. In addition, there are several new point sizes, including 10 point sizes for people who want Macintosh printouts to look like they came from a typewriter, for several different fonts. In addition, the entire Toronto font has been moved from the System file to the Fonts file. The fonts in the Fonts file may be moved back and forth between the System file using Font Mover and the techniques described in this section of the Appendix. If you like, you can set up different disks with different fonts and store unused fonts in the Fonts file. You can even make several different files of fonts as long as you rename them on the desktop (Font Mover only recognizes the name Fonts). Open these renamed files by double-clicking their icons directly, instead of opening Font Mover first.

Appendix C

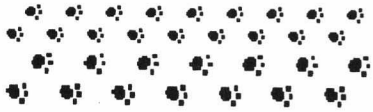
Macintosh Keyboard Magic
The Hidden Character Set

When most personal computers surprise their owners, they do so in a big way—usually by telling them all their information has been lost or their disks are no longer readable. The Macintosh itself offers its share of surprises. Unlike most computers, though, the Macintosh's surprises are pleasant, and some are downright thrilling.

One of the Macintosh's nicest surprises is an entire "hidden" character set that is neither displayed with the Key Caps desk accessory nor mentioned in any Macintosh instruction book. Inside the Macintosh and its fonts are images for a host of characters, shapes, and designs. All are made by holding the Option and Shift keys down while pressing the Tilde/Accent key on the upper left of the Macintosh keyboard. Whether you are in MacPaint or MacWrite, all you have to do is start pressing the keys and then vary the font, size, and style of the characters. Varying these options lets you create three or four different images within each font.

Refer to the following chart for a description of some of the more memorable hidden characters. These characters are perfect for adding a special touch to MacWrite documents, and you don't even have to paste them from MacPaint. Some of the more decorative patterns, especially in Toronto, Monaco, and Venice, make excellent additions to letterheads. Or you can just rely on the pictures to do most of the talking for you in your documents. However you use the hidden characters, they are fascinating and fun.

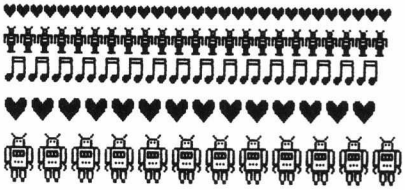
Athens



18 point

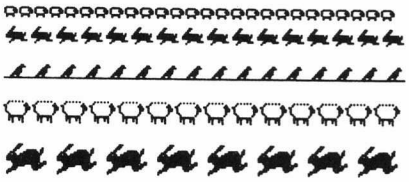
24 point

New York



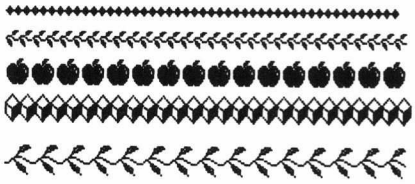
9 point
12 point
14 point
18 point
24 point

Geneva



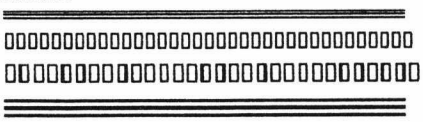
9 point
12 point
14 point
18 point
24 point

Toronto



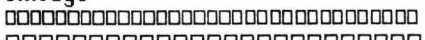
9 point
12 point
14 point
18 point
24 point

Monaco



9 point
12 point
14 point
18 point
24 point

Chicago

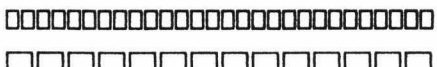


9 point
12 point

Venice

9 point
12 point
14 point

London



9 point
18 point

San Francisco

18 point
24 point

Hidden Macintosh characters are made by holding down the Option and Shift keys and striking the <`> key at the top left of the Macintosh keyboard. Characters may be produced with any size from 9 point to 72 point.

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USING THE TOOLBOX

Macintosh Mouse Programming

by Robert W. Stat and John A. Heil

Apple's Macintosh has received rave reviews from both beginners and experts. Novices like the machine because it's not intimidating. Programmers like the Macintosh because of the treasures buried in its memory. The User Interface Toolbox is a set of resources that makes it possible to create programs that run as elegantly as the famed MacWrite and MacPaint programs. *Macintosh Mouse Programming* introduces the mouse and the toolbox. With the help of the toolbox, beginners can create programs much more sophisticated than anything they could produce on another machine.

Macintosh Mouse Programming covers all aspects of the toolbox. QuickDraw is a set of graphics subroutines that make it possible to draw elaborate, animated pictures. The Window Manager lets the reader create a program that shows several activities simultaneously on the screen. And Desk Manager lets the reader write a program that uses the Mac's "desk accessories," including the alarm clock, the note pad, the control panel and the scrapbook. With *Macintosh Mouse Programming*, readers will be able to exploit the toolbox to create extraordinary programs.

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Macintosh BASIC

by Robert W. Stat

Just as Apple broke ground simply by creating the Macintosh, it also has created a new form of BASIC. This BASIC makes use of many of the Mac's most useful and appealing features. Macintosh's windows make it possible to run a program and simultaneously watch the lines on the screen as they are executed. The User Interface Toolbox provides ready-made subroutines and programs that make it possible for a beginner to create programs that rival the software produced by experts. Furthermore, it's possible to create BASIC programs that make extensive use of the Macintosh's mouse.

But Apple added another feature that makes this a truly new type of BASIC. Macintosh BASIC lets the programmer name subroutines and program modules: the program calls on these routines rather than branching off to different line numbers. This BASIC can be used to create disciplined, structured programs that are easier to debug.

Macintosh BASIC is geared to the college students and young professionals who are making the Macintosh a success. Like the author's earlier books, the text is an urbane introduction to BASIC filled with numerous programs that not only teach the reader structured BASIC but also offer lasting utility.

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LEARNING TO PROGRAM RIGHT THE FIRST TIME

Macintosh Pascal

by Gerard Lewis, author of *Macintosh: The Appliance of the Future*

Pascal is becoming recognized as the best programming language for beginners. Unlike BASIC, which is easier to learn, Pascal encourages good programming habits from the start.

The only problem is that Pascal does not respond while a program is typed into a computer. Instead, most personal computers compile Pascal programs.

Macintosh's Pascal solves this problem. "Instant" Pascal is "incrementally compiled," meaning that each line is immediately added to the rest of the program so that it can be analyzed. If there's a mistake in the line, the machine says so right away.

Macintosh Pascal teaches programming to the thousands of high school and college students and young professionals who use the machine. With lots of examples and a touch of humor, the text introduces the concept of structured programming and presents the building blocks of a Pascal program. This is an excellent introduction to Macintosh's special version of Pascal.

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CELEBRATE 1985 WITH
AMERICA'S FRIENDLIEST COMPUTER

MAC: The Macintosh Calendar

Photographed by D.W. Mellor

With its ease of use and its cute icons, the Macintosh has been embraced as a kind of mascot by college students and young professionals. But despite its friendliness, the Macintosh is surprisingly modest. Unlike most other computers, which can be dismantled and modified by their owners, the Macintosh is sealed at the factory. The average consumer would probably break the machine if he or she tried to peek inside. As a result, the true nature of the Mac is a mystery to the very people who use it the most.

MAC: The Macintosh Calendar offers Mac enthusiasts 13 unexpected, never-before-seen views of their beloved machine. Photographer Doug Mellor has created spectacular, almost surrealistic, full-color shots of the Macintosh, its mouse and all that hardware behind the icons. Captions with each photograph offer inside information on the machine and its creators. This is a great gift item for the hundreds of thousands of people who use the Macintosh and those who wish they could have the friendliest personal computer around.

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Meet Macintosh

Now, the friendliest personal computer is even easier to get to know! *Macintosh: The Appliance of the Future* goes beyond what you could learn simply by using the Macintosh or reading the machine's instructions. With this guide, you'll also master advanced techniques and shortcuts for using the Macintosh operating system, the MacWrite word processing program and the MacPaint graphics program. You'll even learn about Mac features that are barely explained or *not mentioned at all* in the Macintosh documentation!

This step-by-step tutorial covers:

MacPaint — Create elaborate illustrations, letterheads, graphs, etc. Add text to a picture and customize background patterns. Use FatBits shortcuts to change details quickly in your illustrations.

MacWrite — Start out with the basic commands for creating, editing and formatting documents. Play with MacWrite's nine typefaces. Move a picture from the Clipboard into your text. Create standard formats for letters, memos, reports, etc. Underline and boldface words without reaching for the mouse!

Dealing with the Desktop — Practice with the Calculator, the Alarm Clock and other accessories. Keep the desktop neat by arranging your documents into folders. Organize and retrieve your documents with a folder tree.

Disk Management — Save documents and make backup copies with the minimum number of disk swaps. Create data disks for your documents. Clear out seldom-used features to increase disk capacity by as much as 15 to 75 pages of text!

And There's More! — Learn about the programmer's switch on the side of the machine. Discover the characters (rabbits and robots, for example) hidden behind the typefaces. And much more!

Macintosh

The Appliance of the Future

Gerard Lewis

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